

FINANCIAL TIMES

World Business Newspaper <http://www.ft.com>

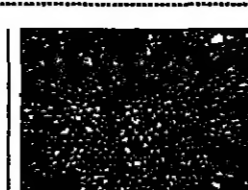
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Roche sits out
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US biotechnology
Cash dries up for
hard-pressed sector
Page 15

FT-IT review
On the eve of
a new revolution
Separate section

WORLD NEWS

Fischer calls for EU political union to follow the euro

German foreign minister and deputy chancellor Joschka Fischer called for political union to become the goal of the EU as an essential counterpart to the introduction of the euro. *Europe, Page 2*

Euro outlines secularist policy
Bulent Ecevit, Turkey's new prime minister, outlined a staunchly secularist programme and vowed to follow the principles of Mustafa Kemal Ataturk, founder of the modern Turkish state. *Europe, Page 3*

Cresson under growing pressure
Edith Cresson, the former French prime minister, was coming under increasing pressure from the European parliament to resign as the European Commission battled to avoid being voted out of office. *Europe, Page 2*

Mystery of China's missing billions
China's foreign exchange reserves increased by just \$5.1bn to \$145bn last year, raising the embarrassing question of where most of \$86.9bn in reported trade and investment gains has gone. *Asia-Pacific, Page 6*

US warns Japan over steel
The US warned Japan to cut steel exports quickly or face retaliatory action, as tensions between Washington and Tokyo moved to the centre of an escalating dispute. *Page 12*

Police seek euro common
Barcelona police have been investigating a common trying to persuade elderly people their pesetas are about to become worthless and need changing into euros. *Europe, Page 2*

Netanyahu attacked over spending
Israeli opposition leaders criticised prime minister Benjamin Netanyahu for launching a spending spree ahead of May 17 elections. *International, Page 4; Observer, Page 11*

Elton John issues negligence writ
Musician Elton John issued a writ alleging negligence against Andrew Haydon, former director of William A. Wong, his master company, and PricewaterhouseCoopers. *Britain, Page 7*

Russian Communist Party split
A split threatens Russia's Communist party after a group of prominent leftwingers said they intended to contest parliamentary elections on a separate platform. *Europe, Page 3*

US makes nuclear test ban priority
US President Clinton's national security adviser said US ratification of the treaty banning nuclear testing would be a priority this year. *International, Page 4*

French inflation lowest since 1954
France ended 1998 with inflation running at an annualised 0.3 per cent, the lowest rate recorded since 1954. *Europe, Page 2*

Austria rejects Brussels budget call
The Austrian government rejected a call by the European Commission for stricter budgetary discipline. *Europe, Page 2*

In Hebrew, for 'euro' read 'arrow'
Israeli lexicographers have decided that the euro will be pronounced and spelled in Hebrew as 'arrow'.

BUSINESS NEWS

Prada makes \$140m by selling stake in Gucci to LVMH

Prada, the Italian fashion group, made a profit of \$140m by selling its 9.5 per cent stake in rival Gucci to LVMH, the French luxury goods group. *Companies and Markets, Page 13*

China is heading a trio of emerging market borrowers planning to launch bonds denominated in euros. The bonds would be the first in the currency by sovereign borrowers from emerging markets since its creation. *Page 12; Bonds, Page 20*

Glaxo industries of France and Vickers of the UK took a step towards rationalisation of Europe's armoured vehicle industry by signing a letter of intent to co-operate on marketing, design and development. *European companies, Page 16*

Arjo Wiggins Appleton announced a shake-up of its businesses in moves seen as a prelude to a possible break-up of the Anglo-French paper group. *Companies and Markets, Page 13; Observer, Page 11; Lex, Page 12; Origami tactics, Page 18*

Toyota Motor president Hiroshi Okuda is set to resign his post as Japan's leading carmaker after being nominated to head the Nikkeiren, a prominent group of business leaders. *Asia-Pacific companies, Page 14; Japanese carmakers, Page 14*

HypoVereinsbank of Munich and Commerzbank of Frankfurt are set to decide on the future of Adig, the German fund management group that they own. *International companies, Page 17*

Sweden's largest union movement called for an investigation into a sharp increase in the number of leading companies that are moving their headquarters overseas. *Europe, Page 3*

Transabel, the Belgian energy group, declined to comment on reports that Gerard Mestrallet, chief executive of French giant Suez Lyonnaise des Eaux, would oust its chairman, Philippe Bodson, by March. *European companies, Page 16; Lex, Page 12*

The Italian government said it would sell its remaining 4.5 per cent stake in Telecom Italia by the end of April. *International companies, Page 17*

Shares in UK pub and drinks companies were hit after one operator blamed the country's flu epidemic for a fall in Christmas sales. *UK companies, Page 18*

The World Trade Organisation decided that a panel should rule on whether the EU's amended banana import regime complies with previous WTO judgments. *Trade, Page 6*

ACE, the Bermuda-based insurance group, agreed to buy Cigna's global property and casualty insurance business for \$3.45bn in cash. *Companies and Markets, Page 13*

World Equity Markets
The latest trends and data from more than 50 national markets at a glance. *Page 31*

Japan buys dollars in policy U-turn

Bank acts to force yen down in Tokyo after complaints over rising currency's damage to exporters

By Paul Abrahams and Gillian Tett in Tokyo, Alan Beattie in London and Gerard Baker in Washington

The Japanese authorities intervened yesterday to support the dollar for the first time since 1986 in an apparent reversal of recent exchange rate policy.

The unilateral intervention forced the yen down against the US currency by ¥4 to ¥112.33 in Tokyo trading. It followed vociferous complaints from Japanese industrialists about the damage the sharp appreciation was causing exporters, and signs of unease inside the government.

Traders reported that the Bank of Japan had bought around \$1bn worth of dollars during the day from a range of Tokyo-based banks, although others later estimated the intervention at between \$2m-\$3m.

That was small compared with the \$20bn the Bank spent purchasing yen last spring to boost the Japanese currency. However, traders said that in a thin market the currency was more sensitive



to signals or rumours of intervention.

Derek Halpenny, currency economist at the Bank of Tokyo-Mitsubishi in London, said the breach of the ¥110 level had apparently been the spur to intervention.

"There was a fear that the yen would have gone on and approached the ¥100 level

against the dollar unless some action was taken," he said.

Analysts said the Bank of Japan seemed content with the yen in the ¥110-120 range, and it was unlikely to intervene again unless the currency rose once more above ¥110.

Last week Eisuke Sakakibara, Japan's vice-finance minister, appeared to endorse a stronger

yen with comments that prompted the Japanese currency to jump to ¥108 against the dollar on Monday, its highest level for 28 months.

His stance - and the yen's recent rise - caused dismay among senior officials in the Bank of Japan who have argued during the last year that the Japanese economy needed a weaker yen to boost growth.

Yesterday Mr Sakakibara, accompanying prime minister Keizo Obuchi on a European tour to bolster the yen's status alongside the dollar and the euro - modified his earlier remarks.

He said: "An excessively strong yen is undesirable, as is an excessively weak yen."

Eiromu Nonaka, chief cabinet secretary and the leading government spokesman, said after the intervention that "excessive appreciation or depreciation aren't something we want from the standpoint of the economy".

Internal economic models used by institutions such as the Economic Planning Agency imply

that a 10 per cent sustained rise in the value of the currency could reduce growth more than 0.5 percentage points in a year.

This suggests the currency's recent rise would offset most of the impact of the government's huge stimulus package, say officials. In August the yen fell to a year low of ¥147.24. By Monday it had appreciated 26 per cent.

Bank officials insist that a stronger yen is unlikely to help the banking sector because the banks have slashed overseas assets in recent months as part of their restructuring.

Bank of Japan data shows that Japanese banks' overseas assets fell to ¥12,000bn in October to reach ¥95,500bn. That is the lowest level for 15 years and ¥45,000bn down on a year earlier.

The intervention came as trade tensions between Japan and the US intensified over steel and other manufactured exports.

Dollar-yen debate, Page 5; Martin Wolf, Page 10; Bonds, Page 20; Currencies, Page 21

Murdoch says new internet companies are overvalued

By John Capper in London and Sheila Melville in Kuala Lumpur

Rupert Murdoch, who heads News Corporation, the international media company, yesterday punctured the euphoria about internet stocks, saying many new companies in the industry were heavily overvalued and unlikely to meet profit projections.

His remarks came as internet stocks in New York broke their unprecedented rally of recent weeks, during which shares in companies such as Yahoo, America Online and Amazon.com have risen more than 10 per cent daily.

Mr Murdoch's scepticism is likely to fuel the growing debate about the valuation of internet companies that are unlikely to produce profits in the short term. The market valuation of AOL, the internet service provider, recently exceeded that of Walt Disney, the US media company.

Speaking in Singapore, Mr Murdoch said News Corp would "certainly not be making takeovers of large, or already over-capitalised companies". The

internet was "not the death-knell of the old" among media companies, he added.

The strong rise in internet-related corporate valuation has been driven by investors' growing belief that groups such as AOL can transform distribution of information and entertainment, and persuade consumers to buy products on line.

Shares in Yahoo, the search engine, which soared 21 per cent on Monday, fell back 10% to \$404 in early trading in New York. Elsewhere in the sector, AOL was off \$5 at \$150 while Amazon.com, the on-line book store, was off \$18% at \$168.

Mr Murdoch, whose media conglomerate was founded on news-papers in Australia, said he was sceptical about the projected growth of such companies.

News Corp has been among the most cautious of the world's largest media companies in investing in internet enterprises. Bertelsmann, the German publishing group, has stakes in AOL and barnesandnoble.com, another online bookstore.

Mr Murdoch said News Corp's

traditional competitors were being just as cautious and it did not "see any need to hurry this. The big stars of the internet like AOL, Amazon.com or Yahoo! were not the creation of old media companies".

Mr Murdoch said internet companies would exist alongside those in traditional media such as television and radio, but the internet would "destroy more businesses than it creates" by "wiping out the middlemen" in transactions.

He emphasised his company's ambitions in Asia, saying it was keen to show news programmes on its television networks such as Star TV in Asia, despite claims by critics that he censored news outlets to avoid offending China.

Mr Murdoch said he was still some way from reaching a deal to invest up to \$250m in a new subsidiary of Kirch Group, the loss-making German media group. Kirch has been seeking \$750m from investors to offset pay television losses.

Lex, Page 12
World stocks, Page 29

EU manufacturing declines suddenly

By Wolfgang Münch in Frankfurt

European manufacturers suffered a sudden and accelerating decline in business activity during the fourth quarter last year, according to the first purchasing managers' index published for the euro-zone.

The figures may add to the pressure on the European Central Bank to cut interest rates early this year. Gloom about Europe's manufacturing sector was corroborated yesterday by German data, showing a 2.3 per cent monthly drop in industrial production during November. The decline was largely due to a fall in orders from Asia and Latin America.

Yesterday's data suggest that the euro - the single currency launched on January 1 for 11 European economies - may have started in a far worse economic climate than thought.

According to NTC Research, a UK-based group that also publishes the PMI for the UK, the PMI in the euro-zone fell from 49.3 in October to 46.9 in December, against a level of 50, which represents no change in business activity.

Input prices - the prices of raw materials and semi-manufactured goods - showed the most

extreme decline with an index level of 37.6, signalling steep and protracted input price deflation. It was the eighth consecutive monthly fall in input prices, according to NTC.

Manufacturing output, new orders and employment uniformly contracted during December.

The euro-zone PMI is based on data from Germany, France, Italy, Spain and Ireland, covering 82 per cent of total manufacturing activity in the euro-zone. In the UK, the PMI is considered one of the most accurate indicators. Stephan Morisson, London-based economist at Salomon Smith Barney, the securities firm, said the weak industrial output data for Germany suggested the economy was more sluggish than he had expected.

He said the ECB would probably cut interest rates in the spring "with a decent chance of a second cut in mid-1999".

The gloomy manufacturing data contrast starkly with continued optimism among euro-zone consumers.

A European Commission survey published yesterday said consumer confidence is running at the highest level this decade.

Barry Riley, Page 13

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WORLD MARKETS

STOCK MARKET INDICES	
New York: Dow Jones	9508.98 (+108.93)
NASDAQ Composite	2234.10 (+50.49)
Europe and Far East	
UK: FTSE 100	4100.70 (+101.20)
US: S&P 500	5200.10 (+70.50)
Germany: DAX	3023.6 (+51.4)
France: CAC 40	1215.91 (+19.23)
Nikkei	13,260.97 (+7.51)
US TREASURY RATES	
3-month Treasury Bill	4.47%
6-month Treasury Bill	4.47%
1-year Treasury Bill	4.47%
2-year Treasury Bill	4.47%
5-year Treasury Bill	4.47%
10-year Treasury Note	4.47%
30-year Treasury Bond	4.47%
OTHER RATES	
UK: 10 yr Govt	128.54 (127.12)
USA: 10 yr Govt	105.21 (107.07)
Germany: 10 yr Govt	105.21 (107.07)
Japan: 10 yr Govt	105.21 (107.07)
NORTH SEA OIL (Aquis)	\$11.76 (12.18)

THE FINANCIAL TIMES LIMITED 1999 No.33,804
London • Leeds • Paris • Frankfurt • Stockholm • Milan • Madrid • New York
Chicago • Los Angeles • Tokyo • Hong Kong

Euro-zone target price €15	
Germany	€15.00
France	€15.00
Italy	€15.00
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Sweden	€15.00
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Sale of Olympic stake postponed

By Mario Hope in Athens

Greece's Socialist government is to postpone the planned sale of a strategic stake in Olympic Airways because of the state carrier's worsening financial and labour problems, officials said yesterday.

Instead the transport ministry will seek an international airline consultant to take over management and revive a faltering restructuring effort launched last year. One Olympic official said Speedwing, the consulting arm of British Airways, would be "an obvious candidate".

The government last year asked Salomon Smith Barney, the international investment bank, and Eteva, a state-controlled Greek investment bank, to find a strategic partner for Olympic Airways. It is the only southern European state carrier that does not belong to an international airline alliance.

But strong union opposition to a cost-cutting plan, imposed under a special law for restructuring, has discouraged potential investors.

Intermittent strikes by pilots and cabin crews protesting against a pay freeze



Strikes by Olympic's pilots and cabin crews over pay and benefits were blamed for a 15 per cent fall in passenger numbers last year. Reuters

and cuts in benefits were blamed for a 15 per cent fall in passenger numbers last year.

The refusal of Olympic pilots to work overtime during the New Year holiday resulted in dozens of flights being cancelled or delayed.

The airline's management said up to 15 per cent of domestic and international flights would have to be cut if negotiations this week with the pilots' union fail to

resolve the dispute.

"Revenue projections in Olympic's business plan look increasingly unrealistic," one analyst said.

"Given the uncertain outlook for the industry after the Asian crisis, it would be difficult to bring off a strategic sale in the next few months."

Despite an EU-approved state aid package, Olympic faces deepening financial crisis. The airline forecast a

return to profit in 1998 after the government injected Dr14.2bn (\$51m) in fresh capital last July and provided a \$378m state guarantee for loans to buy new aircraft.

Under EU competition rules, Olympic cannot receive further subsidies.

But an audit of Olympic's 1997 financial results by PWC, the international accountants, revealed bigger than reported losses. An airline official said the losses

amounted to Dr60bn, compared with Dr6.8bn on the published balance sheet.

Analysts said the difference reflected inadequate financial reporting systems at Greek state enterprises.

Olympic's wage bill was much bigger than projected, amounting to 50 per cent of total revenues, while it had tripled commissions to travel agents in a bid to win business on international routes.

SWEDEN UNIONS ALARMED AS LEADING COMPANIES RELOCATE

Call for probe into corporate exodus

By Tim Burt in Stockholm

Sweden's largest union movement yesterday called for a government commission to investigate a sharp increase in the number of leading companies that are moving their headquarters or management functions overseas.

LO, the union movement representing 2.1m blue collar workers and a close ally of the ruling Social Democrats, said job security was being undermined by companies reconsidering their presence in Sweden.

Concern at companies threatening to relocate has risen dramatically in recent weeks following reports of a possible strategic alliance or merger between Volvo - the Swedish automotive group - and either Ford of the US or Fiat of Italy.

Bertil Jonsson, LO president, yesterday told reporters he would oppose a sale of Volvo and any shift in its headquarters overseas, warning institutional investors might block such a move. The union leader is also a board member at

Fourth AP Fund, one of Sweden's largest investment companies, which owns 9 per cent of Volvo.

"I cannot see the fund saying yes to a sale and a move from Sweden," he said.

Fears of an exodus by Swedish companies have grown following last year's decision by Ericsson, the telecommunications group and Sweden's largest exporter, to move some of its corporate functions and European headquarters to London.

Last month Astra, the Swedish pharmaceuticals group, said its headquarters would also move to London following its merger with Zeneca of the UK.

In recent years, a number of large Swedish corporations - including Pharmacia, Nordbanken, Nobel Industries, ABB, Ikea and Tetra Laval - have moved headquarters overseas, either following international mergers or for tax reasons.

Employers have partly blamed Sweden's punitive income taxes, relatively illiquid stock market and inflexible labour regulations

for the decision to move.

SAF, the Swedish employers' confederation, yesterday said the LO had contributed to the problem by refusing to embrace labour market reforms or changes in taxation.

"There is a strong feeling in industry that neither the government nor the union movement wants to make fundamental reforms," said Christian Bratt, director of international affairs at SAF.

Government officials made clear it was considering tax reforms for low and middle income earners.

The finance ministry is considering lowering tax levels for expatriates on short term contracts.

Ericsson last year said difficulties in recruiting overseas staff was one reason behind its decision to relocate some corporate functions to London.

LO officials warned further moves overseas could damage Sweden's industrial base, arguing that directors located outside the country would take a different attitude to investment in Sweden.

Communist party in Russia faces split

By John Thornhill in Moscow

Russia's Communist party threatened to crack in two yesterday when a group of prominent leftwing MPs said they intended to contest the forthcoming parliamentary elections on a separate platform.

Victor Ilyukhin, the radical leader of the parliamentary security committee, announced he would form his own electoral bloc based on the Movement for the Support of the Army (DPA) before the December elections. Mr Ilyukhin said he would be joined by Albert Makashov, a former general, and several other Communist MPs.

The split in Russia's biggest parliamentary party emphasises how fragmented the country's political spectrum is. Forty-three political parties contested the previous parliamentary elections in December 1995 - although only four won enough votes to enter the parliament as parties.

Our Home is Russia, the centrist party which forms Russia's second biggest parliamentary grouping, has also been riven by factionalism recently. The internal disputes culminated in the forcing out of Alexander Shokhin as the party's parliamentary leader in December.

Mr Ilyukhin, a hardline Leninist and visceral opponent of President Boris Yeltsin, has long criticised the conciliatory policies pursued by the Communist party leadership. The DPA, backed by disaffected army officers, has championed a far more confrontational approach.

In recent weeks, Mr Ilyukhin and Mr Makashov have come under withering fire from Jewish groups and liberal politicians for making anti-Semitic remarks.

The criticism grew so intense that Gennady Zyuganov, the Communist party leader, was forced to distance himself from their position.

But Mr Zyuganov yesterday played down the significance of the split. He suggested the Communist party might now co-operate with the Fatherland party recently founded by Yury Lashkov, mayor of Moscow, to support his presidential ambitions. "We will work with them in as far as there remains the danger of a liberal revanche," Mr Zyuganov said.

The Communist party, the country's most organised political force with 600,000 members and nationwide representation, includes supporters ranging from social democrats to nationalist Stalinists.

There are some signs that the social democratic wing, unofficially led by Gennady Seleznev, a former editor of the Pravda newspaper and speaker of the lower house of parliament, may also break with Mr Zyuganov's party. In a television interview on Monday, Mr Seleznev said he was "ready" to head a new left-of-centre coalition if called upon to do so.

Ecevit outlines secularist blueprint

Bulent Ecevit, Turkey's new prime minister, yesterday outlined a staunchly secularist programme in a speech to parliament by vowing to follow the principles of Mustafa Kemal Ataturk, founder of the modern Turkish state, Reuters reports from Ankara.

"To all the problems we may face, we shall seek solutions in the enlightened path of timeless leader Ataturk," said Mr Ecevit, whose new minority government will lead the country to polls in April.

Ataturk forged overwhelmingly Moslem Turkey as a secular country in 1923 and has remained a dominant political figure.

Mr Ecevit, 73, became premier on Monday at the head of a minority government after six weeks of political crisis. Tension between the secularist army and main opposition Islamists has risen in recent days.

The leftist leader managed to garner outside support from two rival conservative parties.

The powerful military has called several times in the last 10 days for an end to political instability.

Mr Ecevit, three times prime minister in the 1970s, acknowledged the new administration did not have enough time to make a mark because of elections set for April 15.

"The main duty of the 58th government, which has a limited tenure to govern, is to carry Turkey to the general and local elections... in a secure and peaceful fashion," said Mr Ecevit, who heads the leftwing Democratic Left party (DSP).

However, he will have to deal with economic woes at home and differences with Nato ally Italy over the fate of a Kurdish guerrilla leader in Rome.

Mr Ecevit repeated previous promises to pass urgently a 1998 budget and banking bill, reform the costly social security system and grant union rights to public sector employees.

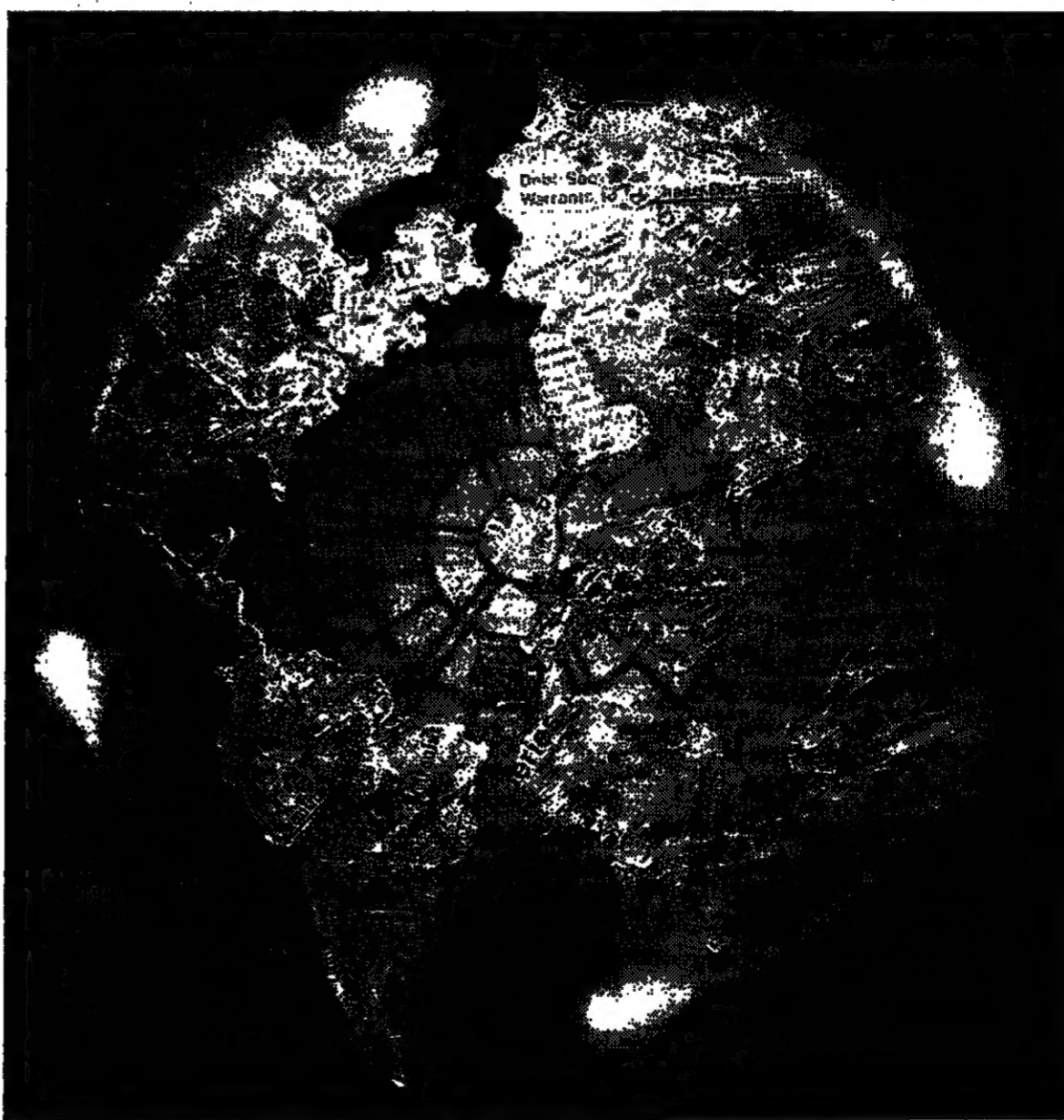
He also pledged to keep up the fight against inflation. Annual wholesale price inflation dived to 54 per cent in December from 91 per cent a year earlier. The speech was designed to reinforce parliamentary support ahead of a confidence vote scheduled for Sunday. Mr Ecevit is likely to win the vote.

The main opposition Islamist Virtue party and secularist parties are expected to compete fiercely in the forthcoming polls.

Virtue, the biggest grouping in the parliament, is tipped to do well despite suffering from a two-year legal onslaught inspired by the army. It has already launched an election campaign.

Friction between Islamists and the military, which has staged three coups since 1980, increased at the weekend when the military said Virtue could be outlawed for allegedly threatening democracy and Turkey's secular constitution.

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WORLD TRADE

BANANA DISPUTE WASHINGTON AND BRUSSELS REMAIN AT LOGGERHEADS AS WORLD TRADE BODY PLANS RULING ON EU STANCE

WTO orders review but fails to cool tempers

By Frances Williams in Geneva

After months of procedural wrangling between the US and the European Union, the World Trade Organisation yesterday decided that a panel should rule on whether the EU's amended banana import regime complies with previous WTO judgments. However, the decision failed to cool tempers in the long-running transatlantic dispute.

Washington said it would not back away from its intention to seek WTO authorisation for \$370m-worth of trade sanctions when the WTO's dispute settlement body next meets on January 25. The EU has

already brought a WTO case challenging the planned sanctions which it argues would be illegal under WTO rules.

The dispute settlement body yesterday agreed to a request from Ecuador and, despite objections from the US and three Latin American banana producers, from the EU itself that the original panel should review the consistency of the EU's new banana import system that came into effect on January 1.

The three-man panel will have 90 days to produce its report, following which there could be an appeal. This could in turn delay a final WTO decision until

long after early March which the US says is the latest date at which its sanctions will be brought into effect.

US officials said after yesterday's meeting that they were considering whether to ask for third-party rights on Ecuador's request, giving access to panel hearings and submissions.

The US, Honduras, Guatemala and Panama had earlier argued without success that the EU panel request was not valid. They particularly disliked what appeared to be a call by the EU for the panel to rule that the regime must be considered to conform to WTO rules unless formally challenged.

However, Roderick Abbott, EU ambassador to the WTO, said yesterday that since Ecuador had issued such a challenge this call was moot. The EU had decided to maintain its panel request to make sure a panel was established in the event that Ecuador came under pressure to withdraw.

Ecuador, the biggest banana supplier to the EU, has chosen to go its own way on a panel request despite US reservations. Late last year the US pressed the EU to agree an expedited panel that could report before the clock started ticking on the sanctions timetable, but the EU refused.

WTO procedures permit the US and the five Latin American co-complainants, including Mexico, to request authorisation to retaliate if the EU had not complied with its WTO obligations by January 1. However, the EU maintains that the regime is WTO-compliant, and that sanctions cannot be invoked unless the WTO itself, through a panel, decides otherwise.

The US and its allies argue that the amended scheme, which continues to favour bananas from African, Caribbean and Pacific countries, still unfairly discriminates against Latin American bananas and US-based banana distributors.

Rita Hayes, US ambassador to the WTO, yesterday called on the EU to work out a settlement on a WTO-consistent regime. However, Mr Abbott said the EU would not negotiate under the sanctions threat and did not accept that its regime needed further amendment unless there was a WTO ruling to that effect.

WTO members agreed yesterday not to replace Celso Lafer of Brazil, who has been appointed his country's trade minister, as one of two trade diplomats conducting consultations on the next WTO director-general. The task will now be left solely to William Rosier, Switzerland's WTO ambassador.

Doubts cast on Baku-Ceylan pipeline costing

By Robert Corzine in London and Leyla Boulton in Ankara

Western oil companies operating in Azerbaijan are still awaiting details of Turkey's terms and tariffs for the controversial Baku to Ceyhan pipeline, even though Ankara has publicly said it has disclosed such details.

The pipeline is being heavily promoted by Turkey and the US for economic and strategic reasons, but many oil companies in the Caspian Sea region doubt whether a sufficient volume of oil will be available to justify spending the \$3.7bn that the Azerbaijan International Operating Company (AIOC) believes it will cost to build the 2,000km line.

that substantial progress is being made on enhancing the competitiveness of the Baku-Ceyhan option is not reflected in reality. They say Ankara has yet to give any indication of how much it will charge in transit fees or any financial incentives it might offer to make it more attractive. Western oil companies, most of which support a cheaper line to Superport in Georgia, say substantial concessions need to be made to make the line viable.

This week Turkish officials said they expected Azerbaijan to complete the formation of the Main Export Pipeline Company by the summer, when they said that the various host government and inter-governmental agreements could be ready for ratification.

Azerbaijan is expected to invite AIOC members and other oil companies in the Caspian to take stakes in the company.

Reuters reports that Iranian project management company Mapna has won a \$47m deal to build a Caspian Sea oil pipeline to the country's northern refineries and was considering consortium partners.

Mapna said it had been informed by the National Iranian Oil Company (NIOC) that it won the contract, beating Italian, British, German, Russian, South Korean and Saudi competitors.

OECD Export Credit Rates

The Organisation for Economic Co-operation and Development announced new minimum interest rates (%) for officially supported export credits for January 1999 to February 14 1999 (December 19 1998 to January 14 1999 in brackets).

Australian dollar	5.77 (5.78)	Yen	2.00 (2.00)
Danish Krone	5.06 (5.18)	Swedish Krona	4.86 (5.18)
Canadian Dollar		Sterling	5.61 (6.02)
up to 5 years	5.78 (5.98)	Swiss franc	3.69 (3.75)
5 to 8.5 years	5.72 (5.97)	US dollar for credits	
more than 8.5 years	5.78 (6.05)	up to 5 years	5.49 (5.57)
Korean Won	9.08(10.43)	5 to 8.5 years	5.45 (5.54)
		more than 8.5 years	5.55 (5.78)

These rates are published monthly by the Financial Times, normally in the middle of the month. A premium of 0.2 per cent is to be added to the credit rates when being at risk. Interest rates may not be used for more than 120 days.

The Japanese Yen CRR will change to 2.75 as of 14th January 1999.

Rates for the euro, replacing the currencies of the 11 members of the euro-zone, are to be added later.

MEAT TRADE DEAL SOUTH AMERICA DROUGHT AND CUT IN CATTLE NUMBERS CREATE CONDITIONS FOR ACCESS

Australia to export beef to Argentina

By Gwen Robinson in Canberra

Argentina has agreed to accept its first fresh beef imports from Australia, a move the Australian government described yesterday as a significant market breakthrough.

Argentina has traditionally been a large beef producer and exporter. But drought in South America and reduced cattle numbers had combined with the Australian dollar's fall last year and a downturn in Australia's main Asian markets to produce favourable conditions for entry into Argentina's beef market, said Mark Valle, Australian agriculture minister.

Under a new trade agreement, Australian beef exporters had gained access to a country that has itself been considered a major competitor for Australian meat, he said.

Australia exports about

A\$3bn (US\$1.9bn) worth of beef annually, with the bulk destined for Japan, the US and other Asian markets. But Asian demand for fresh beef has fallen in the past year.

The agreement with Argentina comes ahead of moves by the Australian government to expand its trade office in Buenos Aires and open new trade offices in South America and eastern Europe.

The offices are aimed at helping Australian exporters to diversify their markets and offset falling demand in traditional Asian markets.

In the latest sign that Asia's economic downturn is weighing on Australian commodities exports, figures published yesterday showed exports of Australian forest products down 14 per cent in the September quarter, with the biggest fall being in woodchip exports to Japan.

Exports for the quarter



Mustering cattle in Queensland: Canberra's deal is part of its moves to diversify markets. Ross Bray

amounted to A\$370m, down 14 per cent, while imports rose 10 per cent to about A\$765m, according to the Australian government's bureau of agricultural and resource economics.

Woodchip exports, which accounted for nearly half the total, plunged 22 per cent from the June quarter to A\$182m, mostly on declining

demand from Japan.

Brian Fisher, the bureau's executive director, said the decline had been expected and there were signs of recovery in other Asian markets, particularly for roundwood and wastepaper products.

The growth in imports, meanwhile, was due to strong domestic demand -

mainly for timber used in housing - and lower world prices for sawn wood and wood-based panels, Mr Fisher said.

The decline in Asian demand for Australian forest products reflected similar downturns in regional markets for other agricultural products including seafood, wool, beef and grain.

Canal safety warning

By Charles Batchelor, Transport Correspondent

A proposal to reduce the number of pilots required on large vessels passing through the Panama Canal from two to one will endanger the safety of shipping, the canal's pilots' association warned yesterday.

At the same time a proposal from the Panama Canal Commission to make shipowners responsible for the first \$1m cost of damage from incidents in the canal would increase their insurance costs, it said.

These measures have been put forward as part of a package of proposals in the run-up to the hand-over of the 51-mile canal by the US to Panama on December 31.

The Panama Canal Pilot's Association, representing most of the 270 pilots, complained there had been inadequate consultation on the proposed changes, which are to be considered by an independent arbitrator next month.

Rene van Hoerde, the canal's maritime operations director, said none of its proposals would affect safety.

INTERNATIONAL

N-test ban treaty ratification a top priority for Clinton

By Stephen Fidler in Washington

President Bill Clinton's national security adviser said yesterday that US ratification of the treaty banning nuclear testing would be one of the Clinton administration's top priorities this year.

In a speech in which he also announced US penalties against three Russian scientific institutes for providing sensitive missile and nuclear

technology to Iran, Sandy Berger said Mr Clinton would draw attention to the objective in his State of the Union address planned for next week.

Obtaining the long-awaited consent of the US Senate to ratify the comprehensive test ban treaty, signed by 151 nations, would not be easy. "We know this is an uphill fight. We have some formidable opponents in the Senate. But I think

the important thing here is to make it clear to the United States Senate that the American people want this treaty ratified," he said.

"If the Senate rejected or failed to act on the test ban treaty, we would throw open the door to regional nuclear arms races and a much more dangerous world. Ratification will take a serious effort from all of us. It will be a terrible tragedy if our Senate failed to ratify the CTBT this

year," Mr Berger told a conference on non-proliferation organised by the Carnegie Endowment.

Failure to ratify would also undermine US efforts to encourage India and Pakistan - both of which tested nuclear devices for the first time last year - to adhere to the treaty, which they have said they will do by September this year.

Mr Berger said ratification of the treaty would be one

element of a US plan to move "aggressively" to strengthen the international non-proliferation regime. The US would also aim to deal with the risks posed by weapons of mass destruction by addressing regional threats, such as those posed by the governments of Iraq and North Korea, and bolstering defences to those potentially threatened by missile attacks.

He identified two main

risks: that terrorists would acquire and seek to use chemical and biological weapons, and the acquisition of ballistic missile technology by a growing number of countries.

The US wanted to make rapid progress on a treaty to ban further production of fissile material. The five established nuclear powers - the US, Britain, France, Russia and China - had all agreed to a voluntary moratorium

on plutonium production, he said.

The US would also work on strengthening the safeguards applied by the International Atomic Energy Agency and push to obtain agreements on compliance and inspection measures under the Biological Weapons Convention.

He named the three Russian entities to attract penalties, which included a ban on imports from and exports

to the institutions, as: the Scientific Research and Design Institute of Power Technology, known as Niiet; the D. Mendeleev University of Chemical Technology; and the Moscow Aviation Institute. Last July the US took action against seven others and has warned that co-operation over lucrative space launches would not be expanded until Russia halted co-operation with Iran's ballistic missile programme.

Angola's government has upper hand in civil war of oil versus diamonds

Unita appears determined to fight to the bitter end even though the government controls the resources of the growing oil industry. Nicholas Shaxson reports

Angolans have found many reasons for killing each other this century. But two factors above all are propelling the conflict into a new phase, as troops from the Angolan Armed Forces battle against Unita rebels in the central highlands and render the moribund 1994 Lusaka peace agreement increasingly meaningless.

First, Unita's leader, Jonas Savimbi, believes it is his destiny to be president of Angola and he will fight until he wins that, or is eliminated.

The second reason is more complex.

A deep schism in Angolan society pits a rural-based Unita, claiming to represent real working Africans, against a corrupt, oil-rich government, symbolised by Portuguese-orientated and mixed race urbanites.

The ebb and flow of battle over the years suggest there will be no outright military victory in this conflict.

When Unita's Mr Savimbi used his astonishing charm and persuasion to convince policy-makers in the US and South Africa that he was a freedom fighter and true capitalist believer during the cold war years, he led what still is essentially a peasant movement with a strong Maoist flavour.

Unita's recent military successes near Kuito and Huambo illustrate that though many ordinary Angolans hate him, Mr Savimbi's appeal to poor, rural society has an enduring resonance.

The government is showing its concern.

President José Eduardo dos Santos said last month that Mr Savimbi was "heightening the class struggle to deepen these contradictions, so as to seize power violently".

The government's forces traditionally hold towns and cities, funding their war with oil revenues which Unita's guerrillas prefer to hide in the countryside, digging diamonds scattered over huge areas of the bush.

Another dimension, important in the past, has faded. After the anti-colonial struggle ended at independence from Portugal in 1975, Mr Savimbi appealed increasingly to ethnic Ovimbundu identity.

But many former Ovimbundu supporters turned against him after he refused to accept defeat in presidential elections following a 1991 peace agreement, and tried instead to shell and starve Kuito into submission in the return to war.

The ruling Popular Movement for the Liberation of Angola (MPLA) is divided too, but it is held together by a shared opposition to Savimbi. "Many politicians in Luanda want Savimbi alive, to keep themselves in power," a foreign analyst said.

The full reality may be less cynical. Until mid-1998 Mr dos Santos wanted to weaken Mr Savimbi through international and domestic pressure and force him to move to Luanda as a weak junior partner in a power-sharing agreement. This could have addressed the class divide that Mr dos Santos knows will not be closed by military means.

But when Unita began offensive operations again in middle of last year, the government's suspicions that the rebel leader would never complete the Lusaka deal were confirmed, and policy

changed tack. It mounted a clumsy effort to foster an anti-Savimbi faction of Unita officials in Luanda, to replace him with someone more willing to find a way to heal Angola's divisions. But Mr Savimbi remained firmly in control of his troops.

In the meantime, Mr dos Santos expects to have the upper hand in a long war of attrition, given that oil production will rise sharply next century, and the diamond deposits used by Unita for funding are slowly being degraded.

Mr Savimbi has for years used the UN-monitored Lusaka agreement, which he never saw as more than a negotiated surrender, as a shield behind which to hide, re-arm, and wait for future opportunities.

Two have appeared: the conflict in neighbouring Democratic Republic of Congo, and a catastrophic fall in the oil price which has torn huge holes in government finances.

Mr Savimbi has hoped for years that these divisions, fed by Angola's abominable poverty, will lead to an anti-MPLA uprising, perhaps backed by poorly paid conscripts and junior officers.

This hope, like the government's belief in the possibility of an anti-Savimbi coup within Unita, is more delusion than anything else. The fundamental divide that defines the war, and propels it forwards, is as deep as ever.



Netanyahu under fire for 'election economics'

By Avi Machlis in Jerusalem

Israeli opposition leaders yesterday attacked Benjamin Netanyahu, prime minister, for launching a spending spree ahead of elections scheduled for May 17, while economic policymakers warned of the dangers of election economics.

On Monday night, Mr Netanyahu reversed his economic austerity programme and pushed through a bill for free education for preschool children that will cost the state Shk23m (\$3.3m). Mr Netanyahu had opposed the bill, which was initiated by the opposition Labour party, since his election in 1996.

Ehud Barak, Labour leader, who has opposed Mr Netanyahu's tight fiscal policy, said the move would "not cover up the government's failure to systematically address the problems of Israel's disadvantaged sectors over the past two years".

The government also moved to reduce costs of medical services and sell off public housing units at substantial discounts. Planned cuts to pensioner benefits have been scrapped. Treasury officials said the entire package could cost the state up to Shk2.5bn a year.

Political analysts said the decisions targeted voters from broad cross-sections of society. In contrast, since

NEWS DIGEST

CONFLICT IN IRAQ

US threatens to crush no-fly zone defiance

US warplanes yesterday fired at a radar site in northern Iraq in the second such incident this week, as Washington warned Baghdad that it would crush any defiance in the no-fly zones. William Cohen, US defence secretary, on a trip to Japan, said the US would give no ground in enforcing the no-fly zones and said Baghdad would pay a price if it challenged US and British air might. Mr Cohen declined to say whether repeated Iraqi missile threats against US and British jets, or violations by Iraqi warplanes of the no-fly zones, might prompt wider attacks against the Iraqi military by American forces.

Beyond that I wouldn't want to say anything," he said.

The White House was also firm in its response to Iraqi defiance. "The no-fly zones are being enforced vigorously and American pilots will take the appropriate actions to respond to any action taken against them," White House spokesman Joe Lockhart said yesterday.

The Pentagon said a US F-16 jet was on a routine patrol of the northern no-fly zone yesterday when it opened fire with a High-Speed Anti-Radiation Missile (Harm) on an early-warning radar site near the city of Mosul.

US Central Command in Tampa, Florida, said there had been five violations in the southern no-fly zone yesterday. Reuters, Baghdad

SIERRA LEONE

Rebel leader in talks

Sierra Leone's detained rebel leader was flown from his jail to neighbouring Guinea for talks with mediators yesterday, raising hopes for a ceasefire after a week of fierce fighting. Freetown, Sierra Leone's ambassador to Guinea said the past two years - went straight into talks with West African foreign ministers, the United Nations and the Sierra Leone government. Mr Sankoh's transfer abroad was a rare move before they would consider a ceasefire or political talks. Mr Sankoh has been detained by the government of President Ahmad Tejan Kabbah and his military allies in the death for treason last October. Reuters, Freetown

DOLLAR-YEN DEBATE

RUBIN 'OUR DOLLAR POLICY REMAINS ABSOLUTELY UNCHANGED'

'Hands off' is still the US watchword

By Gerard Baker in Washington

On the surface there was a numbing familiarity about the words of Robert Rubin, the US Treasury secretary, yesterday in response to questions about the Bank of Japan's currency market intervention to prop up the dollar.

"I'll just repeat what I've said so often, which is that a strong dollar has served us well and our dollar policy remains absolutely unchanged."

"We favour a strong dollar" has been the leitmotif of Mr Rubin's three and a half year tenure at the Treasury and, through the dollar's ups and downs, has become the official if somewhat tedious mantra of US foreign exchange policy.

But the timing of the statement of that policy yesterday made it rather more significant than it might have seemed.

The Bank of Japan intervention and Mr Rubin's remarks came against a background of darkening storm clouds in US-Japanese relations over their perennially controversial trade balance.

The Clinton administration has come under mounting pressure from industry in the last few months to get tough with Japan.

For all the strength of the US economy overall, the manufacturing sector has slipped quietly into recession in the last six months, hit hard by weakness in international markets, and Japan is widely seen as the principal culprit.

While the main gripe so far has been the alleged "dumping" of cheap Japanese steel in the US market, anti-Japanese trade sentiment is rising across a range of industries. Many companies, backed by some members of Congress, are pushing hard for retaliatory action through a variety of legal weapons.

But the one piece of good news these companies have had in the last six months has come in the foreign currency markets.

Since last August, the dollar has declined from its peak by more than 25 per cent against the yen - hurting Japanese exporters, but providing crucial support for hard-pressed US companies.

Most exporters would be very happy to see the dollar fall further than the ¥110 level it has reached in the last week.

Many in the Congress - and, some suspect, in the administration - believe a strengthening yen, by hurting exports, and encouraging imports, ratchets up the

pressure on Japan to open its markets. Some administration officials hope the dollar's weakness will help to ease some of these industrial and political pressures.

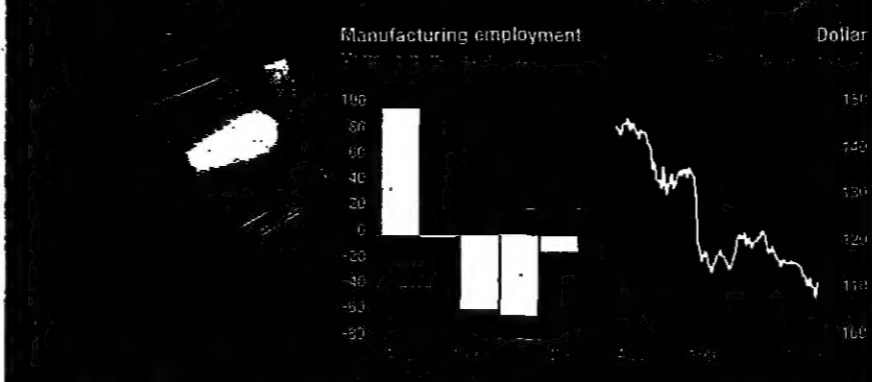
In these circumstances, any US measure that could be seen as pushing down the yen might not be politically wise.

"In the current political environment, the administration needs to keep its Democratic base happy. Since manufacturing industry and its labour unions are an important part of that base, a policy designed to strengthen the dollar might not help much," says Robert Hormats, a former administration official now at Goldman Sachs, the New York investment bank.

But if that impression takes hold, it could signal to currency traders that the administration is happy to acquiesce in the further decline of the dollar for political reasons.

Yesterday's remarks by Mr Rubin need to be seen in this context. Some observers believe the Treasury is indicating it will not allow the politics of trade disputes to dictate foreign exchange policy.

That's not what's likely to drive the Treasury's policy, says Mr Hormats.



Instead, the weakness of the dollar poses two potential problems for the US.

First, while the strain it is placing on Japan may be good for US exporters, it could have a further damaging effect on the world economy.

If Japan continues to stagnate, the global crisis that convulsed the world last year could easily return.

Second, any weakening of the dollar poses specific risks for the US. Though higher import prices are not a serious concern in a period of quiescent inflation, the potential impact on financial markets is worrying.

If a sliding dollar damages the attractiveness of US financial assets in the eyes of international investors, that could spell trouble for

the whole economy.

Does that mean the US may now be ready to support the Bank of Japan with co-ordinated intervention? Not necessarily.

Since Mr Rubin joined the Treasury, the US has become a very infrequent participant in co-ordinated attempts to move currency markets.

"The Treasury's approach is one of active caution - if that's not an oxymoron," says Dan Tarullo, who was President Bill Clinton's

advisor on international economics until a year ago. "They know foreign intervention is a tool whose utility diminishes with use - only when there is a very clear case for action and a very high probability of success, do they act," he says.

In any case, it seems

unlikely that there is any "line in the sand" which the dollar could cross that would prompt immediate intervention by the US. Speculation that the Treasury might act as soon as the dollar slipped below ¥105 or ¥100 is almost certainly unfounded. What is more likely to cause concern is the risk of sudden volatility, threatening to produce big swings in financial markets.

But the political pressures are still strong and officials cannot rule out the possibility that one day they might be seen to come to the aid of Japanese exporters. The best hope for the US administration must be that the Japanese intervention works on its own and that the dollar-yen rate stabilises soon.



Keizo Obuchi, Japanese premier: still facing hard times

Japanese and Germans eye co-ordination on currencies

By Ralph Atkins and Frederick Stiefelmann in Bonn

Keizo Obuchi, Japan's prime minister, last night said his government wanted a stable yen, insisting the Japanese currency should have an importance equal to the dollar and the newly launched euro.

Visiting Germany on the last stage of a European tour, Mr Obuchi also won backing from Gerhard Schröder, German chancellor, for his proposals on "tripartite co-operation" between Japan, Europe and the US aimed at greater stability in the world currency markets.

Mr Schröder said the ideas presented by Mr Obuchi were "a good basis for discussions by G7/G8 finance ministers but which will also be developed further at the Cologne summit of the G7/G8 [in June]." The chancellor said it was the task of both governments to ensure "more transparency and co-ordination" in international financial markets.

The Japanese ideas on currency co-ordination have received a warm welcome in Bonn. Oskar Lafontaine, Germany's finance minister, has repeatedly called for the international community to agree measures which would help avert damaging volatility and excessive speculation in currency markets. Bonn fears the crisis in Asian economies will hit German economic growth this year.

Mr Obuchi said the launch

of the euro at the start of this year, to replace national currencies within European states, was "very important for the stabilisation of the international currency situation." Up until now, the dollar had taken the lead role.

Japan was now looking for international agreement on measures "so that the currency situation in the whole world can be improved further". He insisted the yen was "just as important as the other currencies, the dollar and the euro". Governments he had spoken to were not opposed to the yen having a high value.

Mr Obuchi said his government was looking to improve the strength of the Japanese economy to underpin the national currency.

"Our policy should be to drive forward the stabilisation and strengthening of the yen and I hope that this will be successful," Mr Obuchi said.

Separately, Mr Schröder and Mr Obuchi also agreed to combine Japanese and EU efforts at stabilising the Russian economy. Mr Schröder said Germany, which holds the presidency of the EU, and Japan should act together more than in the past in deploying the "considerable resources of the two countries".

Other topics covered during the talks at the Bonn chancellery included reform of the United Nations and agreement on a joint effort to strengthen the role of the UN general secretary.

Spotlight falls on need to finance US deficit

By Alan Beattie in London

The yen's surprising rise against the dollar has confounded traditional thinking in the currency markets.

By most usual arguments, the yen should be a weak currency. Even with the recent rise in Japanese government bond yields to 2 per cent, the return from holding yen denominated assets is still relatively low. Meanwhile the stricken Japanese economy shows no signs of emerging from its troubles.

But since the collapse of the US hedge fund, Long-Term Capital Management (LTCM), and the precipitate drop in the dollar in October last year, when it fell by ¥20 in a few days, traders in international financial markets have sharply reduced their exposure to risk.

"The situation at the moment is almost like the 1980s and 1990s," says David Bloom, currency strategist at HSBC in London, "when currencies took their lead from

current account surpluses and deficits."

The lack of activity in financial markets has put the spotlight on the huge US current account deficit, which dumps \$10bn a month into global financial markets.

Unwillingness among Japanese investors to add to their huge stock of overseas assets has threatened a shortfall in funding for the US deficit, contributing to the dollar's fall.

Previously, speculative market participants such as hedge funds also provided support for the dollar by borrowing in yen and then changing it into dollars to take advantage of the higher yield available in US assets.

But after the sharp drop in the dollar last October caught out many hedge funds, the enthusiasm for this "yen-carry" trade has declined.

"Although many investors are still keeping their money in hedge funds, risk appetite in the hedge fund industry

has still not regained its levels before the LTCM collapse," says Dana Moore of Global Asset Management.

Japanese investors are also feeling the pinch after seeing the yen value of their dollar-denominated assets plummet last year. This may make them less willing to invest abroad.

As the realisation grows that liquidity may be slow to return to the world's markets, market strategists have revised down their forecasts for the dollar against the yen.

Ravi Bulchandani, chief currency economist at Morgan Stanley Dean Witter in London, was one of the first to predict the effects of thin markets pushing up the yen.

"In illiquid markets capital flows matter," he said in a research note published at the beginning of November last year, "and current and prospective flows in the dollar/yen market are stacked against the dollar."

Slowdown seen for US Investors favour Asia-Pacific

By Jane Martinson, Investment Correspondent

US economists remain pessimistic about Asia's prospects and foresee a significant slowdown in US expansion in 1999, the National Association of Business Economics (Nabe) said yesterday, Reuters reports from Washington.

A survey of 130 Nabe members found US business had improved performance in the final quarter of last year from the third quarter, as strong capital spending offset a squeeze on manufacturing. But they said the outlook was not promising.

"During the first half of 1999 Nabe panelists expressed caution going forward, probably given the uncertainties in Asia. Panelists expect relatively weak economic performance there, with only one third anticipating a turnaround in Asia before December 1999."

Continuing economic problems in Asia meant US companies would have difficulty raising their prices and would have to trim costs to boost profits, Nabe said.

Fund managers favour the Asia-Pacific region, excluding Japan, above all other investment areas because of the impact of a weak dollar and increased enthusiasm about the area's economic outlook.

An international survey of 280 managers with assets of \$6.98bn, carried out for Merrill Lynch, the US investment bank, found last week that enthusiasm has grown since the dollar started to weaken in September. Managers believe the weak dollar could prompt an export-led recovery in the region and allow countries to cut interest rates.

The most favoured countries are those with a currency pegged to the dollar, such as Hong Kong.

Trevor Greenham, global strategist at Merrill Lynch, said: "The enthusiasm is based on the belief that Asia will recover as long as the dollar remains weak."

Some 77 per cent of fund

managers in the Asia-Pacific region expect their economies to strengthen over the coming year. This compares with just 41 per cent in October. Japanese managers are the second most optimistic about their domestic economy, with just over 60 per cent seeing an improvement.

US and UK managers are among the least positive about domestic economies. The former expect gross domestic product to increase by 2.2 per cent in 1999.

Enthusiasm for the Asia-Pacific region started when the dollar began to fall. Asia-Pacific fund managers have since begun to buy more shares, cutting their holdings in cash from 21 per cent of total holdings in September to 5 per cent.

Some 20 per cent of all fund managers, surveyed believe the dollar will be the world's strongest currency this year. By contrast, 69 per cent favour the euro.

Three quarters of UK managers expect the pound to weaken against the euro over the next 12 months.

Doubts cast on
Baku-Ceylan
pipeline costing

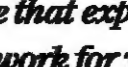
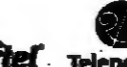
for Clinton

US threatens to crush
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ASIA-PACIFIC

Chinese trade data skewed by fraud and smuggling

By James Kyngs in Beijing

China announced yesterday that its foreign exchange reserves increased to \$145bn last year, raising the embarrassing question of where most of the \$88.9bn in reported trade and investment gains have gone.

In the past, the increase in China's foreign reserves has mirrored the gains from the country's trade surplus and inward investment. But last year the reserves climbed just \$5.1bn from a year earlier despite a trade surplus of \$43.6bn and inward investments of \$45.3bn.

Chinese officials and economists said that there were many reasons for the yawning discrepancy, some of which are widely known and others which have only recently become clear.

"The number of illegal activities last year means that both the trade surplus figure and the investment inflow figures are very inaccurate," said one trade official.

Another trade official said: "The figure for foreign direct investment in 1998 is exaggerated. A lot of it is money which has been promised but not invested in China."

Officials said that another distortion arose from the fact that some foreign currency loans, especially from Hong Kong, appear in China's statistics as direct investment. A significant number of these loans are believed to have gone to Chinese entrepreneurs, mostly in southern China, who have created fake foreign ventures by setting up a shell company in Hong Kong and then using it as a "joint venture" partner.

Other explanations included increased profit repatriations by foreign companies, currency fluctuations affecting the dollar

value of the reserves and the fact that from the start of this year, some enterprises have been allowed to keep 15 per cent of their foreign currency export earnings.

Export figures may also have been inflated by another scam: the shipment of fake goods, or even virtually empty containers, abroad. In one example, said the volume of computer casings to replicate the weight of real computers in the hope of avoiding detection by customs officials.

Officials said that the volume of fake exports, combined with the notional value of forged export certificates, has been considerable, though no figures were available. Export certificates are used in China because authorities often require to see them before granting permission to import.

Several irregularities have occurred to skew import data. The titanic battle that security forces fought last year against smuggling indicates that the volume of smuggled goods has been huge.

Gun battles have flared between smugglers and police, accounting for a fair proportion of the official toll of more than 400 murdered police officers last year. Beijing has established a special anti-smuggling security force because customs authorities in some localities can no longer be trusted.

Import documents have been forged to the tune of "several billions of US dollars", officials said. But once the foreign exchange has been obtained, it has often either been sent abroad to seek investment returns or been used to buy smuggled imports.

It is clear that the battle against smuggling and foreign exchange fraud will rage for some time.

Province decides on asset injection

By Louise Lucas in Hong Kong

Guangdong provincial government yesterday said it would inject assets into Guangdong Enterprises (Holdings), known as GDE, to enable its biggest commercial enterprise outside China to "resurrect" itself. GDE group yesterday admitted to debts of US\$2.9bn plus US\$265m outstanding guarantees.

Creditors at yesterday's meeting were told the provincial government had decided to inject assets with strong cashflow and profit as well as cash into GDE to rebuild international creditors and investors' confidence in the embattled group.

GDE has faced increasing difficulty meeting its debt repayments after the collapse of stablemate Guangdong International Trust & Investment Corp (Gitic) - the investment agency government for its losses.

In an exclusive interview in yesterday's publication of the *Mail*, a Japanese national daily, Dr Mahathir made unusually critical remarks about the Japanese response to the crisis in the region. Dr Mahathir, who in the past has been full of praise for Japan, said Tokyo needed to act more swiftly to stimulate its domestic economy and ensure currency stability.

While saying that Malaysia's fixed exchange rate would remain until hedge funds were regulated, he warned that an excessively strong yen could force the country to abandon the fixed rate.

Dr Mahathir noted that the yen's instability made it difficult for the Japanese currency, which has moved erratically in recent months, to become a key currency in the same way that the euro will be for Europe. But most notably was his criticism of the New Miyazawa Initiative, named after finance minister Kiichi Miyazawa, to help the five most troubled countries in the region with \$30bn in aid.

Japanese bank lending falls 4.7%

By Gillian Trill in Tokyo

The balance of outstanding loans at Japanese banks fell 4.7 per cent in December compared with a year earlier, the largest such drop since records began in 1981, the Bank of Japan said yesterday.

The fall partly reflected large-scale write-offs by Japanese banks, which cause the loans to disappear from the data. After adjusting for this, the balance of "real" lending fell only 1.6 per cent in December, the bank said.

However, this 1.6 per cent decline was also a record,

and thus will fuel concern that Japan's economy is being damaged by a so-called "credit crunch".

The data highlight the degree to which some Japanese banks are starting to restructure their balance sheets in response to mounting market pressure and government reform plans.

The bank also revealed that banks' overseas assets have been dropping sharply in recent months as some Japanese banks have withdrawn from global operations.

In October, the most recent available month for

which data are available, banks' overseas assets fell below ¥100,000bn (\$886bn) for the first time in 15 years to ¥96,800bn. This was almost ¥13,000bn lower than the level in September and ¥47,000bn lower than the level in October 1987.

This reflects the fact that Japanese banks have been scrambling to cut assets to improve their weak capital adequacy ratios. In particular, the Bank of Japan and Financial Supervisory Agency have recently stepped up demands that weak banks should withdraw from overseas

operations in order to improve their financial health.

Nevertheless, the bank and FSA now face a difficult policy dilemma over the degree to which they should encourage weak banks to reduce domestic loans. Although some officials recognise that the banks need to cut domestic loans at the same pace as overseas loans, they fear that any sharp reduction in lending levels could exacerbate the "credit crunch" and hurt the economy.

Consequently, the bank has recently responded to

political criticism over this credit crunch by offering to increase its own loans to banks which promise to pass the money on to companies.

However, yesterday's figures indicate that this policy has had limited success so far. Combined outstanding loans at city banks and trust banks fell 3.1 per cent in the year to December, after removing bad loan write-offs.

Outstanding loans at regional banks, however, rose 0.7 per cent, while loans from second tier regional banks rose 2.7 per cent.

Mahathir criticises 'inaccessible' aid plan

By Michioyo Matsuoka in Tokyo, Sheila McNulty in Kuala Lumpur and Sander Thoenes in Jakarta

Mahathir Mohamad, Malaysia's outspoken prime minister, criticised the Japanese government for its slowness in responding to the country's economic problems and complained that Japanese aid under the new Miyazawa plan was not sufficiently accessible to provide a rapid response to the region's financial and economic problems.

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difficult for the Japanese currency, which has moved erratically in recent months, to become a key currency in the same way that the euro will be for Europe. But most notably was his criticism of the New Miyazawa Initiative, named after finance minister Kiichi Miyazawa, to help the five most troubled countries in the region with \$30bn in aid.

Countries wanting to take advantage of the Miyazawa plan have to go through a highly complicated process that made the funds inaccessible, Dr Mahathir said. Malaysia has been one of the biggest beneficiaries of the initiative so far.

Japan has committed itself under the plan to providing a two-step loan of \$500m through the Japan Export-Import Bank and has guaranteed a \$500m structured loan from Sumitomo Bank of Japan. The Sumitomo loan was made available at an all-inclusive cost of funds of 3.4 per cent, equivalent to an AAA rating.

The Japanese government has also pledged another \$5bn under the Overseas Economic Co-operation Fund (OECF) at interest rates ranging from 0.75 per cent to 1.7 per cent.

Thailand has received commitments for a total of \$1.85bn for economic and financial restructuring, while Korea is to receive a total of \$3bn, including \$2.3bn in untied loans.

But Dr Mahathir, who has refused to seek International Monetary Fund assistance, is clearly growing frustrated with efforts to gain through alternate routes the \$500m (US\$16.3bn) in assistance Malaysia estimates it will need over the next two years. Asian countries have been lobbying aggressively to receive financial assistance under the New Miyazawa Initiative. One advantage is that the Japanese government is not insisting on economic and financial reforms, as a condition for receiving aid, as the IMF is. Ginandjar Kartasasmita, Indonesia's co-ordinating minister for economy, finance and industry, is due to arrive in Tokyo on Friday to press for more details on the Miyazawa plan. He is expected to ask for \$3bn and may also suggest some funding options.

A Japanese banker in Jakarta suggested neither Jakarta nor Tokyo had made up their minds about uses for the funds but said the



Mahathir complained about highly complicated process

money would be best spent on soft loans to selected export-oriented industries and infrastructure that would facilitate exports, which would bring in badly needed hard currency. "The money should go to the real economy," he said.

Trade credits are unlikely as an existing \$1bn trade

guarantee of Japan's Exim Bank offered a year ago and set up after much delay last August, has barely been used. Indonesian banks are too hard up for cash to take risks on any letters of credit, and Jakarta only recently took up Japan's suggestion of insuring part of the letter of credit.

NEWS DIGEST

SUPPORT FOR AUTONOMY

Australia upsets Jakarta with East Timor switch

Indonesia responded bitterly last night to Australia's announcement of a policy reversal on East Timor. Canberra had been one of the few western governments to recognise Jakarta's 1976 annexation of the island's eastern half but Alexander Downer, the foreign minister, said yesterday Australia would support autonomy and eventual self-determination for the East Timorese in what he described as an "historic shift" in policy.

Mr Downer qualified the policy change, saying Australia would continue to recognise Indonesian sovereignty over East Timor for the time being. He warned that an immediate move toward self-determination could "reignite civil war" in the province. Australia would prefer to see East Timor remain part of Indonesia, but would support any decision by the East Timorese to become independent after a period of autonomy, he said.

Mr Downer also called for a significant reduction, rather than withdrawal, of Indonesian military presence on the island. "The level of troops is far too high," he said. Indonesia yesterday expressed "deep regret" at Mr Downer's remarks and said the policy change could have an adverse impact on current international negotiations over East Timor. Owen Robinson, Canberra

INDONESIAN POLITICS

Parliamentary threat to budget

Indonesia's parliament yesterday objected to budget allocations for a bail-out of the banking sector, putting at risk the most important element of the government's efforts to revive the economy.

With an eye on the first free elections in 40 years in June, members of four of the five parliament factions said the Rp18,000bn (\$2.3bn) allocation for recapitalisation of some 70 private and state banks was too much taxpayers' money for the sake of a few rich Indonesians.

The dominant Golkar party also demanded revision of economic assumptions underlying the draft budget, due to take effect on April 1. They argued that the exchange rate might drop below the assumed Rp7,500 per dollar, called tax revenue targets overly optimistic and suggested the state reschedule more foreign debt to reduce expenditures. It is the first time in years that parliament raised any substantive obstacles to the budget. Sander Thoenes, Jakarta

CHINESE OFFICIAL

Taiwan meeting cancelled

A Chinese official visiting Taiwan has cancelled a scheduled Friday meeting with Taipei counterparts, casting a shadow over warming ties between the island and its mainland rival.

Yang Xiaoming, deputy secretary-general of Beijing's Association for Relations Across the Taiwan Strait, had been expected to call upon Shi Hwei-yow, secretary general of the Straits Exchange Foundation, the organisation through which Taiwan conducts its relations with the mainland.

Her decision to cancel the meeting was seen as a blow to preparations for an unprecedented tour of Taiwan by Wang Daohan, China's top Taiwan affairs negotiator. Mr Wang's visit has been billed by Beijing as signifying a new phase in the complex relationship between Taiwan and China, which split in 1949 after a civil war on the mainland. Mure Dickie, Taipei and James Kyngs, Beijing

Hubco presses Pakistan for forex

By Farhan Bokhari in Islamabad and Andrew Taylor in London

Hub Power Company, Pakistan's largest private power generation company, yesterday served preliminary notices on the government and the state-owned power company accusing them of breach of contract.

The move appeared to escalate a dispute between the government and Hubco, in which National Power of the UK has a 26 per cent stake.

Hubco said that the government had failed to provide foreign exchange to the company to pay its foreign creditors.

"In accordance with the Implementation Agreement, the government has been notified of the breach which would entitle the company to treat such breaches as a government of Pakistan event of default," it said.

Analysts said the company had the option of issuing a final termination notice in three months if the government did not allow payments of dues.

The dispute began last year when Pakistani investigators accused Hubco of bribing officials in the government of Benazir Bhutto, the former prime minister, to win lucrative conditions such as a high tariff for the power it sells to the state-owned Water and Power Development Authority. The government unilaterally cut the tariff promised to Hubco under a revised contract finalised under the Bhutto government.

Analysts said yesterday's development could set back Pakistan's prospects for seeking an international rescue package of about \$5.5bn, backed by the IMF and the World Bank.

National Power said in November that provisions to cover possible losses in Pakistan accounted for the bulk of a \$30m (\$50m) fall in half-year international profits after tax which fell from \$67m to \$37m. Group after-tax profits in the six months to the end of September before exceptional items fell from \$208m to \$180m.

N Korea in threat to nuclear freeze

By John Burton in Seoul

North Korea yesterday threatened to cancel a nuclear freeze agreement with the US after it accused Washington of delaying promised economic aid.

Analysts believe the latest threat is a bargaining tactic to win new concessions as North Korea and the US prepare to meet in Geneva this weekend.

Under the nuclear freeze accord signed in Geneva in 1994, North Korea promised to dismantle its suspected nuclear weapons programme in exchange for commercial nuclear reactors and fuel-oil supplies from an US-led international consortium.

But Pyongyang has complained about delays in the construction of the promised reactors, while oil shipments have slipped behind schedule. "We can no longer afford such losses," it stated.

"The US has not faithfully implemented any of its commitments. This compels the DPRK [North Korea] to expect nothing any longer from the Agreed Framework," North Korea's official newspaper Rodong Sinmun said.

It warned that "if the US reneges on the Agreed Framework and invites military confrontation, then the people's armed forces and our people will seek a solution, according to a method of their choice".

North Korea and the US are due to meet in Geneva on Saturday to discuss a US demand for access to a suspected nuclear facility near the North's main nuclear complex at Yongbyon.

The talks come before four-party talks resume on Monday involving the two Koreas, China and the US on a peace treaty to replace the armistice that ended the 1950-53 Korean war.

North Korea is demanding the US pay \$800m for a one-time inspection of the suspected nuclear site, which Pyongyang has claimed is for "civilian purposes". It has said it may accept other aid from the US in lieu of the \$800m, which Washington has refused to provide.

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INFORMATION TECHNOLOGY & MANAGEMENT

INFORMATION TECHNOLOGY ONLINE MUSIC SALES

Big five shudder at digital jukeboxes

Thousands of teenagers now routinely e-mail music to their friends. Alice Rawsthorn outlines a revolution in the industry

Early this year, a squad of International Business Machines engineers will be dispatched to San Diego to set up the Madison Project, an experimental system whereby consumers can order digital versions of albums to be delivered to their computers in six minutes.

Only a year ago, record executives dismissed the prospect of music being bought and sold on such systems as techie sensationalism. They have since been proved wrong by the thousands of teenagers who routinely download songs from Internet sites in the form of MP3 computer files and e-mail them to friends.

Universal, Sony, Warner, EMI and Bertelsmann – the big five companies, which command 80 per cent of the \$38bn (£22.6bn) global music market – are so anxious to sell online that they have agreed to participate in IBM's Madison Project in the US, and may take part in similar trials planned by British Telecom and Deutsche Telekom. They are also trying to agree a technical standard – the Secure Digital Music Initiative (SDMI) – on which they can operate pirate-proof online sales systems by Christmas 1999.

Whenever record companies have faced technological change before – from vinyl's invention, to that of the compact disc – initial scepticism has turned to enthusiasm when they realised how to make money from it. The big five hope the digital music market will provide another financial lifeline but, unlike previous changes, this one threatens to redefine the relationship between record companies, their retail customers and recording artists.

The online and offline music markets could co-exist comfortably, if music continued to be sold over the Internet in its present form of compact discs or cas-

settes purchased by mail order. Record stores would gradually lose market share to online specialists, such as CD Now and Music Boulevard, which are about to merge, and Amazon. Conversely, famous independent shops, such as Chicago's Dusty Groove, could broaden their customer bases. Record companies would continue to use the Internet for promotion: EMI's sites now receive 1m hits a month. Prices would fall, as stores matched the discounts offered by online retailers with lower costs. Otherwise the industry would remain intact. Once digital delivery systems, such as the Madison Project, get under way, recordings will no longer be sold as physical products, but as digital signals. That means the growth of online sales has dramatic implications for manufacturing.

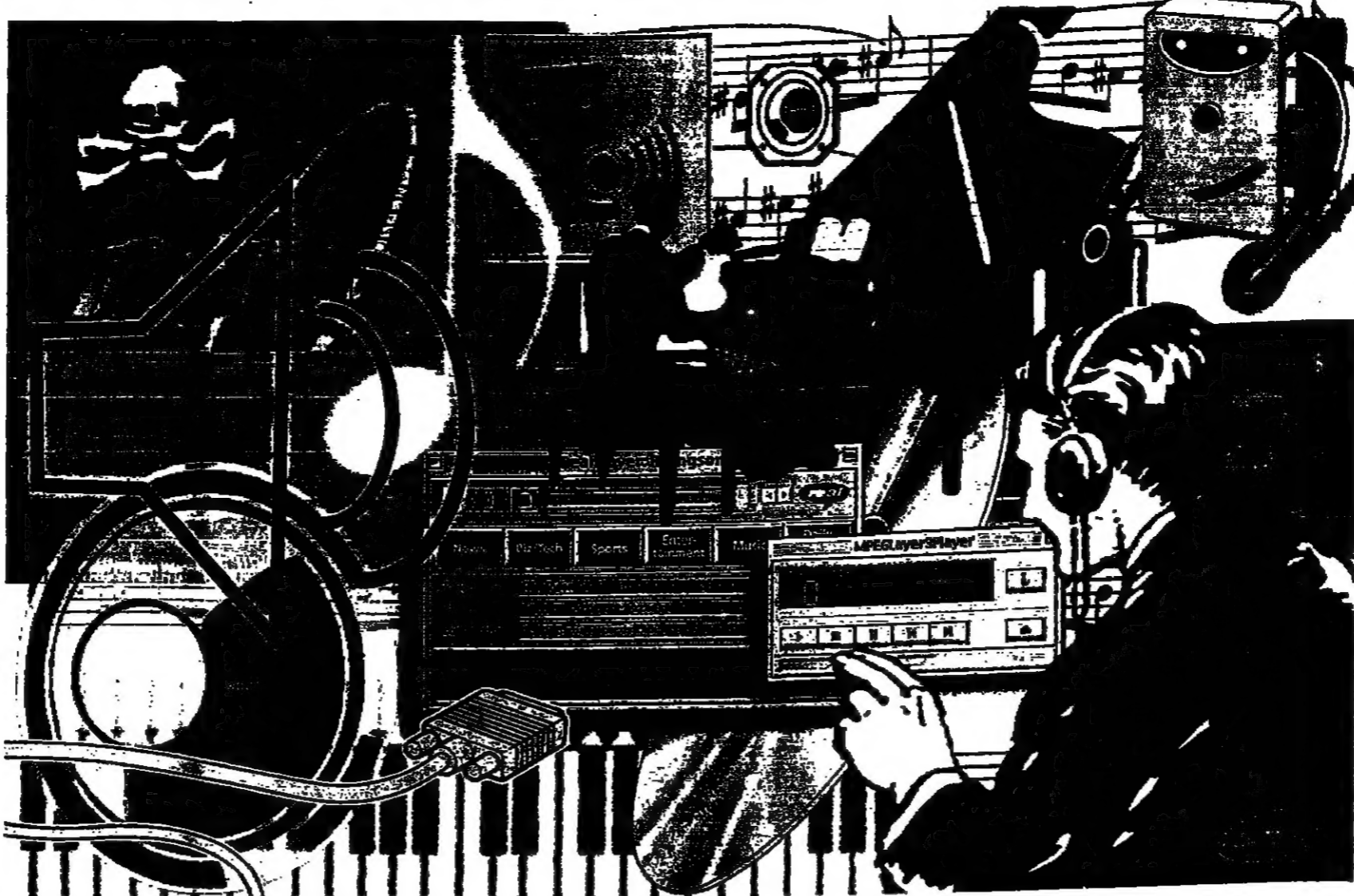
So far, the big five have been too worried about the dearth of legal or technical protection, and about the risk of upsetting traditional retailers, to participate in digital delivery. But there is now a vibrant underground scene of digital jukeboxes, such as IUMA and MP3.com in the US, which charge unsigned acts about \$250 to post up their recordings. Con-

Prices would fall, as traditional stores matched the discounts offered by online retailers

sumers can hear the music online for free, or pay to download it.

These legitimate digital jukeboxes are not direct threats to the music establishment. Most of their acts are too uncommercial to appeal to the big five, although a few have been snapped up – notably Sublime, which has sold 3.5m copies of an album for Universal since being plucked from IUMA.

But the industry is threatened by pirate jukeboxes relaying unauthorised copies of copyrighted music. The RIAA has taken legal action against several



pirate sites, and employs digital detectives to surf the Internet for others. Yet there are now thousands of pirate jukeboxes, and Forrester Research claims 150,000 songs are available on MP3 files.

The RIAA fears Internet piracy will spiral out of control now that portable MP3 recorders, such as Diamond Multimedia's Rio, which it tried unsuccessfully to ban last autumn, are in the shops. The Rio retails for \$199 in the US, and similar products are in the pipeline, including the Yupp, a credit card-sized device manufactured by Samsung of South Korea.

The big five are intensifying their efforts to enter the digital music market. They signed a secret agreement to participate in IBM's Madison Project in November, and last month declared the SDMI plan. If all goes well, they will start digital delivery this autumn, and hope to create a lucrative business of selling direct to consumers, and keeping the retailer's profits.

As the digital music market expands (a recent IUMA study claims digital delivery will account for \$3.7bn of the \$19bn US market in 2007), the price of music is likely to fall. But record companies – if not traditional retailers – should be compensated for reduced offline profits by plump margins on online sales. Yet those calculations assumed

that the big five will continue to dominate the music market in the digital era – and that is far from certain. Traditionally, they have used their commercial clout to strengthen their market positions by bidding up the cost of everything from peak-time television advertising, to record shop windows and prominent display positions. The big five may have trapped themselves in a Hollywood-style cycle of escalating market costs, but they have also made it hard for smaller companies to compete against them.

Size will be less of an advantage in the digital marketplace, where the barriers to entry – and to attracting consumers' attention – will be considerably lower. Digital jukeboxes are the online version of independent labels,

but with such smaller cost bases that they may prove more resilient. Young musicians have always preferred to eschew multi-nationals by signing to hip independents. But those indie labels have often had to sell stakes to the big five after experiencing cashflow crises; which is how U2 ended up on Universal's roster and Oasis on Sony's. The multi-nationals may have less chance to prey on digital jukeboxes and, if the independent sector of the digital music market is financially more stable than its offline counterpart, bands like Sublime may be less inclined to leave it.

Yet these problems pale beside the risk of the big five losing control of their biggest assets: established superstars who may decide to bypass both record com-

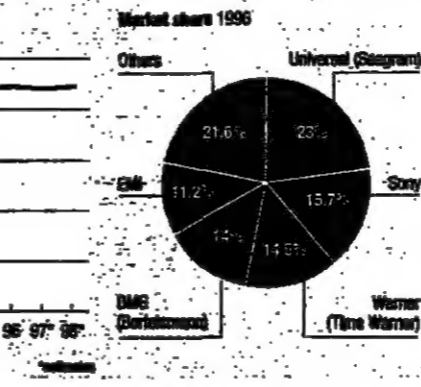
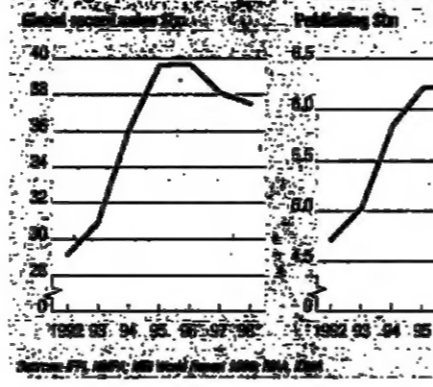
panies and retailers by handling their own distribution. Some acts have already done this, notably the late Frank Zappa, who built a lucrative mail-order business in the 1970s. But most stars continue to believe they need to tap into a record company's resources to distribute and to market their music.

The Internet may provide an efficient alternative, particularly for established superstars, who have loyal fan bases and can afford to hire marketing consultants to handle promotion. Such stars could also negotiate securitised loans against their future royalties from investment banks (as David Bowie has done) to replace cash advances from record labels. They could even license the rights to retail distri-

bution to a label or wholesaler. Lawyers say some superstars are now discussing the long-term possibility of handling their own Internet distribution, rather than renewing record deals.

The big five are already trying to prevent this. Sony has instructed its labels to ensure that new and existing contracts include provision for various online rights, including artists' Internet domain names. EMI recently demanded that the Beastie Boys remove MP3 versions of songs from their Internet site; and Universal had a similar spat with Chuck D. The artists were forced to back down, but the big five know they will face far bloodier battles with their superstars over the digital music market in future.

Playing for change in the online market



US music \$m	1998	99*	2000*	01*	02*	03*
Traditional sales	12,386	12,522	12,927	13,061	12,808	12,801
Internet sales	117	445	781	1,158	1,854	3,556
Digital delivery revenue	0	13	47	185	588	3,717
Total industry revenue	12,483	13,080	13,705	14,301	15,047	16,000



JOHN W. HUNT ADVISES

Got the skills, but the face doesn't fit

US and UK firms dominate management consultancy despite the demand for a wide array of talents

Dear Professor Hunt, I am a German management consultant with a Swiss-based firm. I would like to work with an American or British firm as they seem to dominate most markets. My problem is getting into one. I do not hold an MBA, but can offer several years' high-level experience in industry and an economics degree from a good German university. However, on several occasions US and UK firms have told me I do not "fit". Could this be to do with my lack of an MBA? Or my particular experience? Or could it be to do with my skills?

Prof Hunt replies: Without knowing the specifics of your story I can't say for sure. However, within management consulting there is a huge array of different talents and needs – and if you are experiencing difficulty breaking into a US or UK firm you may need to focus your experience and knowledge more tightly on a particular niche in the marketplace. Talent is one thing; translating it successfully across cultures can be another matter altogether. This may seem unfair, but – as you rightly conclude – US and UK firms are dominant throughout the world. Indeed, at a time when the world seems intent on talking itself into a

recession, management consulting is a great success story, particularly in Europe. Surveys indicate that fee income in the UK for the top 100 firms increased by 37 per cent between 1996 and 1997, giving a total fee income in excess of \$4bn. There was a similar increase in continental Europe, the overwhelming bulk of which was earned by UK and US firms.

A simplistic reason for such dominance is that the highly individualistic British and American cultures encourage those personal profiles that are suited to most forms of consulting. At strategic or top-team levels these typically comprise a high desire for autonomy, recognition, financial rewards, intellectual rigour and challenge – and they are less interested in managerial power or deep relationships with a stable team of people. Many are loners who relish the buzz of working on their own to solve problems for clients. You will find parallels in other professions such as corporate law, merchant banking, software development, and advertising.

UK and US cultures are rooted in a scientific, analytical belief in rational solutions to problems. This belief attempts to extract emotion and politics from the decision process; a practice far less evident in cultures with a greater interest in power and politics, or even the views of the collective.

MBA programmes reinforce both this rational approach and the skills required to hold it. They also attract self-starters. So



It is not surprising to see business school graduates meet the kind of profile the UK and US firms prefer. It is an arrangement which suits both the individual and the firm.

However, many MBAs who go into consulting on graduating do so because they are unsure of what career to pursue. Management consulting offers a chance to delay that decision a little longer and continue the – rather grand – analyses of business their school taught them.

In recent years there has been a shift to recruit consultants with more business experience, who have decided they are interested in consultancy as a permanent career and who may not have an MBA. So do not despair at your lack of an MBA – your time may be coming.

It is important you do not fall for the consulting hype. It is not for everyone. As the consultant, you are only an adviser and your clients experience the fun of managing. True, in global strategy or accounting-based firms there are people who do manage large numbers of consultants on complex assignments. However, they may be perceived by colleagues to be second-rate. The top consultants are the analytical, autonomous, creative problem solvers who have little ambition to get their hands soiled by managing others.

Further, there are many factors that drive people out of

consulting. These include endless travel, long hours, too many nights away from home, and weeks on assignment in another city. While Moscow or Brussels may be exciting for the first three weeks, by the 10th week the hotel and/or the clients are becoming irritating. And as your expertise develops, your assignments begin to repeat as your reputation, for example, in financial control systems in the oil industry, starts to entrap you.

On the positive side you can be your own person. There is a lot of variety. If finding solutions rather than implementing them appeals to you, consulting is hard to beat.

So while the doors to consulting in US or UK firms may not be opening as readily as you might wish, the growth in this industry should encourage you.

However, if you still experience difficulties persuading a firm to see you, you should ask if consulting is really for you. After all, as a consultant your most important skill is your capacity to influence. If you do not have this skill, you are missing an important weapon from your armoury, and I would suggest you think a little harder about your career path.

John W. Hunt is Professor of Organisational Behaviour at London Business School and a consultant to private and public sector clients. This column appears fortnightly.

IT giants team up to prioritise online resources

Traditional corporate networks share network capacity, or bandwidth, equally among users and applications – regardless of their relative importance. This makes it difficult to ensure there is enough bandwidth for a specific function, event or process such as a video conference or e-commerce server – and thereby to maximise the return from investment in the equipment.

Now Microsoft, Compaq Computer and Cisco, three of the largest IT groups, have teamed up to develop a "directory enabled" technology.

It brings together Microsoft's active directory technology – built into the software group's forthcoming Windows 2000 operating system – and Cisco's networking services for active directory enabling a network to direct capacity to where it is most required. Compaq will act as the preferred integrator for the technology.

The initiative means, for instance, that a company's accounts department can demand extra bandwidth at year-end to handle the auditing process, or an international video conference can be booked online and sufficient bandwidth diverted to sustain the link.

Similarly, a financial services company could offer its most valuable clients priority access to a trading network.

"Networks will become more discerning," says Phil Smith, business development manager for Cisco in the UK.

"They will be able to channel power where it is critically required by the business but with sufficient deftness to apply privileges to individuals. That translates into greater return on investment from the network." www.cisco.com



INFORMATION TECHNOLOGY BRIEFS

Different designs drawn in 3-D

In today's fiercely competitive manufacturing environment, where a product's life is often measured in months not years, easy access for everyone involved in the development cycle to product design data and onscreen 3-D images can bring significant business advantages.

The problem to date has been the technical, economic and functional barriers to integrating information from different design programs, and enabling easy access within different departments to users who are not skilled in the specialist software that created the data.

Division Group, the UK-based leading supplier of product data visualisation and simulation tools, believes it has developed the solution with dV/ProductView, a web-based software tool capable of integrating disparate digital product data.

Using dV/ProductView anyone with a standard web browser such as Netscape Navigator or Microsoft Explorer can access, visualise, inspect and annotate an onscreen virtual product, fly-through sequence or documents.

The new software can view a wide range of 3D Cad (Computer Aided Design) data, 2D drawings, documents, audio and multimedia files, real-time simulation data from Division's dV/ModelUp tools and product meta data and has direct links to most product data management systems.

www.division.co.uk

on desktops.

LCD technology is not, however, the only alternative to traditional television tube CRT technology. Proponents claim Field Emission Displays (FED) can provide the picture quality of a CRT with the slender packaging of a liquid crystal display.

PixTech, a French technology company and FED pioneer, claims to have developed the world's first functional full colour 15in FED screen. The company, which demonstrated the first monochrome FED display in 1991, believes large, high-voltage FED technology will be ideal for multimedia applications such as desktop monitors and TV sets because of its CRT-like viewing quality, brightness and unrestricted viewing angle. www.pixtech.com

Sony's desktop CD library

CD libraries can provide small business, department and workgroup network users with access to huge volumes of data such as graphics and sound files, medical records, legal archives and office applications. They enable users to share information and data without the need to exchange discs physically.

Sony's computer peripherals and components division has launched a new desktop CD library, the CDL1100, which allows 100 CDs – up to 650Mb of CD material – to be catalogued, housed centrally and accessed easily by networked users.

The system is supplied with SmartCD Neighborhood software that functions as an electronic bookshelf displaying the CDs as titled volumes or an electronic filing cabinet.

The unit's disc changer loads a CD in only 12 seconds and each unit has two CD drives capable of delivering between 1.2MB and 1.8MB of data a second.

www.sony-cp.com

Paul Taylor

Company ke
classic iden

Science in
face of death

Arts
Guide

BALLET IN TOULOUSE

Company keeps a classic identity

Nanette Glushak has burnished the abilities of her dancers to bring challenging masterpieces to a new generation, writes Clement Crisp

Regional ballet troupes in France sometimes seem in a state of flux, confusing to the foreign observer. Companies flourish (as did the Ballet de Nice lately) under Jean-Albert Cartier and are then cut down in what seems their prime. Others have a Damoclean sword of uncertainty above their head, owed to regional politics and local funding. Others – for unguessable reasons – abandon a decent classical identity in an ill-advised switch of orientation to those unnatural practices known as French modern dance.

In Toulouse, happily, a strong ensemble at the Théâtre du Capitole maintains a bright and interesting classic identity and repertoire, under the direction of Nanette Glushak. A dancer with Balanchine, a principal dancer with American Ballet Theatre, she has burnished the abilities of her dancers and shows them off in a judicious selection of modern classics and new works. The most recent programme by the Ballet du

Capitole, which I saw at the weekend, challenges its artists, and rewards them and their public.

The evening opened with Richard Tanner's *Ancient Airs*. It is one of those plotless ballets – set to Respighi's score of the same name – which are easily and unjustly dismissed as "well-made". Tanner worked with Balanchine, and his sense of construction, his vocabulary, owe everything to this. But the piece is not simply "in the manner of" the master; it is shapely, responsive to its score in manner and form, clearly set-out. It was very well danced by Marieke Simons and Minh Pham and an ensemble, who caught the varied moods and technical felicities of the piece with a happy ease: watching it, one felt that the company had a clear understanding of classic style and the great good sense to enjoy it.

This was no less true of the dancing in Balanchine's *Raymonda Variations* which closed the evening. Here is a master-work, not because it scales any remote heights of

inspiration, but because it shows that genius always means mastery in craft; and the mastery here is like that shown by Fabergé at his most subtly brilliant, when a cigarette case or a little cup is a triumph of the goldsmith's art. Balanchine uses a selection of numbers from *Raymonda*, dresses 12 girls in candy-pink, and sets them curvetting round a ballerina and her cavalier, in variations of blissful charm and difficulty.

The piece is nearly 40 years old. It might pass as a lost treasure of Petipa variations found and re-polished by his heir. It must also be seen as an assertion of the beauty of the *dance d'école*, true in 1961 (when Balanchine made it) as it was true in 1896, when *Raymonda* was new, and still true as 1999 begins. Each of the six variations that entrance the eye is by Balanchine, but in them he evokes his own Mariinsky heritage: super-Petipa, they are also super-Balanchine, and to the vast credit of the Toulouse dancers (and Nanette Glushak)

they have the lustre of fine jewels, which they undoubtedly are. Even in this footed ensemble I must salute Magali Guerry for her exquisite account of her solo, a diamond of finest water, and note how well Evelyn Spagnol and her partner, Juan Polo, set out the beautiful pas de deux.

A very different challenge to the company came with a revival of *Jardin aux Hés*. When it was made in 1936, Antony Tudor's ballet was markedly original. Masked

by the conventions of Edwardian behaviour and pre-Freudian decorum – ah, those were the days – Caroline faces an arranged marriage and bids farewell to her lover, while her rigidly proper husband-to-be ends a relationship with a woman who has been his mistress.

The garden where we watch this is drenched in the scent of lilac blossom. The activities of the quartet are drenched in emotion which must not speak out loud. So good manners hold feeling in

check, but we must feel the strain, know the nerves just beneath the skin, sense the emotions of the man who loves Caroline (it was made for Hugh Laing, who could suggest volcanic feeling barely under control) and know her anguish. Caroline was created by Maud Lloyd, an artist beautifully controlled and ultra-sensitive, and it was fortunate enough to see her demonstrate the first movement Caroline makes in the ballet: a hand passed lightly down the arm

she holds behind her back. The entire character seems to lie in this one gesture.

With the original Hugh Stevenson designs well recreated for Toulouse, with the text mounted by Sallie Wilson who danced Caroline for Tudor with American Ballet Theatre (where Nanette Glushak was the husband-to-be's mistress), and the score very well played by the Capitole orchestra under Claude Cugullière, *Jardin aux Hés* looked right – no small

achievement. Marieke Simons was a subtle Caroline; the other members of the quartet – Leon Frank, Matthew Madsen, Sabine Mouscardes – showed proper understanding and will surely blossom in their roles.

A major work of art is alive – and catching at the heart of a new generation of audiences. The programme did honour to its choreographers and to its performers, and the scores under M. Cugullière, were very well done.



Dance with the lustre of a fine jewel: the company in Balanchine's homage to Petipa, 'Raymonda Variations'

NEW YORK THEATRE

Eloquence in the face of death

Brendan Lemon reviews an extraordinary playwrighting debut by Margaret Edson

When Vivian Bearing, a professor of 17th century English poetry and the main character in Margaret Edson's stimulating new drama, *Wit*, discovers that she has advanced ovarian cancer, she approaches the tumour as if it were a literary problem awaiting solution.

She assembles a bibliography; consults experts; and

Although verbally dense, 'Wit' never feels wordy: the professor is far too clever for that

employs a variety of scholarly approaches which involve what John Donne, her academic specialty, called "aggressive intellect". We know they are all doomed: early on, in one of the many monologues Bearing, bravely played by Kathleen Chalfant, addresses to the audience, we are informed that at story's end she will, in fact, die. With no suspense of outcome, *Wit* must succeed entirely on its eloquence.

That it manages to do so, persuasively, is quite extraordinary, given that the play is Edson's debut and that she has written the

most verbally dense American drama in many seasons. Even when Bearing is delivering a microscopically close reading of a poetic text, *Wit* never feels wordy. The professor is far too clever for that; as she undergoes painful chemotherapy, she is always finding sardonic delight in bodily decline. After an exhausting attack of nausea, for example, she peers up from her bedpan and says, "What's left to puke? You may remark that my vocabulary has taken a turn for the Anglo-Saxon."

Wit evokes Bearing's backstory with an overwhelming freshness. In an early childhood scene with her father, as she stumbles over the word "soporific" in a tale by Beatrix Potter, we see the germ of the professor's fascination with language. During her undergraduate encounter with a Dame Helen Gardner-like don, we listen to a discourse on the metaphysics of punctuation that is near-Stoppardian in brilliance, cresting with the utterance, "The unescapable barrier between one thing and another is just a comma."

Edson pushes her animating comparison – between Bearing's close reading of her physical body and her explication of literary texts – to its extreme in the scholar's conversations with a careerist hospital fellow,



Finding sardonic delight in bodily decline: Kathleen Chalfant, right, with Walter Charles in 'Wit'

Jason Posner (Alec Phoenix). Posner and Bearing are akin in their impatience with intractable, but *Wit*, wisely, does not push the parallel too far. After all, Posner is a reductionist: to him, Donne's "Holy Sonnets" are mere exercises in "salvation anxiety". To his patient, by contrast, they stand as a summa of cultural achievement. Moreover, they are situationally, if not spiritually, consoling: Bearing endures the time-wasting numbness of hospital tests

of Shakespeare's Richard II. Posner and Bearing are akin in their impatience with intractable, but *Wit*, wisely, does not push the parallel too far. After all, Posner is a reductionist: to him, Donne's "Holy Sonnets" are mere exercises in "salvation anxiety". To his patient, by contrast, they stand as a summa of cultural achievement. Moreover, they are situationally, if not spiritually, consoling: Bearing endures the time-wasting numbness of hospital tests

by reciting "Death Be Not Proud". Perhaps *Wit*'s one flaw is identified by Bearing herself, when the chemotherapy is failing and she is taking rigorous account of her life's disappointments. "I admired only studied application of wit," she ruefully notes, "not its spontaneous eruption." The play's lack of impulsive outburst, except when the professor is in agonising pain, at times gives the drama a too-schematic feel that lessens its emotional impact.

But that is a small price to pay for an evening that, while dwelling on death, avoids bathos almost entirely. Credit not only the playwright but the director, Derek Anson Jones, whose staging is as no-nonsense as Bearing's personality, and the scenic designer, Myung Hee Cho, whose rod-and-curtain set conveys an appropriate clinical chill.

Union Square Theatre, Off-Broadway, New York.

OPERA SAMUEL BARBER'S 'VANESSA'

A chilly tale with no tunes

The 1950s was a prodigal decade for new operas, but history is ruthlessly sorting out the winners from the losers. What of Samuel Barber's *Vanessa* – so lavishly praised at its New York premiere, but neglected now?

It does not say much for the opera's hope of survival that its first UK performance should have to wait more than 40 years and then take place in a studio theatre and with only a piano for accompaniment. This is not to denigrate the fine effort made by The Other Theatre Company, merely to point up the contrast with – for example – Britten's operas, as they circle the globe.

It is difficult to put a finger on what is lacking in *Vanessa*. The story, a somnre romance set in a country manor where the chandeliers are dimmed and the mirrors draped, has the chill of Chekhov about it. The characters may not have much warmth to them, but their reserve adds a certain mystery.

The music, like most of Barber, is spiky enough to sound modern, while still having its heart in the 19th century. Callas reputedly turned down the title-role because she said the opera had no tunes. This is not as naïve a judgment as it may sound: Barber's score always seems to be on the point of delivering a real melody, but never does. Did he balk at letting in a good old-fashioned tune, or was he unable to write one?

The result is an opera that is well judged, neither too derivative of earlier operas, nor too far out on a limb to deter the regular opera-going audience. But there is little in *Vanessa* – a character, a situation, or anything specific in the music – that draws the audience in rather than leaving them to observe from the side-lines.

Even if out of necessity, The Other Theatre Company's production capitalised on the sense of confinement in this claustrophobic household. It is not easy to play opera at such close quarters and the cast did very well to keep the drama so convincing, especially Louise Mott in the opera's most interesting role as the spurned younger lover, Erika. The exception was Evan Bowers's wooden Anatol, but he wielded an impressive young tenor voice as compensation.

It would have been easier for the singers with the soft carpet of Barber's orchestration beneath them, but the piano accompaniment was exemplary. About half way through I noticed there was also a conductor, perched behind the audience by the door, beating time happily. The pianist could only see him with the aid of a tiny monitor, and the singers never seemed to look, but maybe you cannot have a serious opera without one.

Richard Fairman

At the Lyric Studio, Hammersmith, London W6.

INTERNATIONAL

Arts Guide

BERLIN

EXHIBITION
Hamburger Bahnhof
Sensation: works from the Saatchi collection of Young British Artists including Damien Hirst, Rachel Whiteread and Mark Wallinger. Originated at the Royal Academy in London last year, where it attracted 350,000 visitors and maximum publicity; to Jan 17

BIRMINGHAM

EXHIBITIONS
Birmingham Museums and Art Gallery
Tel: 44-121-235 2834
Sir Edward Burne-Jones: comprising more than 200 works, including tapestries and jewellery as well as paintings. A second generation Pre-Raphaelite, Burne-Jones had a lifelong working relationship with William Morris, for whose firm he worked as a principal designer; to Jan 17

COLOGNE

OPERA

Oper der Stadt
Tel: 49-221-221 8240
Die Vögel: first modern staging for Walter Braunfels's opera. Premiered in 1920, it was banned by the Nazis and largely forgotten until a recent recording. This production is conducted by Bruno Weil and staged by David Mouchtar-Samora; Jan 15

LONDON

CONCERTS
Barbican Hall
Tel: 44-171-638 8891
● BBC Symphony Orchestra and Chorus: conducted by Andrew Davis in works by Messiaen. With piano soloist Stephen Osborne; Jan 16
● BBC Symphony Orchestra and Chorus: conducted by Andrew Davis in works by Messiaen. With piano soloist Yvonne Loriod; Jan 17
● London Symphony Orchestra: conducted by Ryszard Murnajski in works by Saint-Saëns and Tchaikovsky, as well as the UK premiere of Sofia Gubaidulina's *The Canticle of the Sun*. Featuring cello soloist Mstislav Rostropovich; Jan 13

EXHIBITIONS
Royal Academy of Arts
Tel: 44-171-300 8000
Monet in the 20th Century: arriving in London from Boston, this exhibition brings together late works by the founder of Impressionism. The 80 works on display include important public and private loans, culminating in a group of seven of the monumental water lily paintings

which were the triumph of his career; from Jan 23 to Apr 18

Tate Gallery
Tel: 44-171-587 8000
John Singer Sargent: large-scale retrospective containing 150 paintings, including major public and private loans. Includes late landscapes and American and British society portraits from the 1880s to the early 1900s; to Jan 17

LOS ANGELES

OPERA
L.A. Opera, Dorothy Chandler Pavilion
Tel: 1-213-972 8001
www.laopera.org
Madama Butterfly: by Puccini. Conducted by Marco Guidicini and directed by Christopher Harlan. With a cast including Yoko Watanabe, Richard Leach and John Atkins; Jan 13, 16, 19

MILAN

EXHIBITION
Palazzo Reale
Tel: 39-02-8891 5738
L'Anima e il Volto: (The Soul and the Face): major exhibition of portraits, comprising 370 works ranging over 400 years. Artists represented include Titian, Caravaggio, Van Dyck, Picasso and Francis Bacon; to Mar 14

OPERA

La Scala
Tel: 39-02-86791
The Flary Angel: by Prokofiev. Bruno Bartoletti conducts a staging by Giancarlo Cobelli, with

Karen Huffstodt and Elмира Magomedova singing alternate performances as Renata; Jan 14

MUNICH

CONCERTS
Philharmonie Gastspiel
Tel: 49-89-5481 8181
● Munich Philharmonic Orchestra: conducted by Ivan Fischer in works by Stravinsky and Bartók, with violin soloist Ivan Fischer; Jan 14, 15
● Philharmonia Orchestra London: conducted by Christoph Eschenbach in works by Mozart, Prokofiev and Brahms. With piano soloist Tzimon Barto; Jan 17

OPERA
Bayerische Staatsoper
Tel: 49-89-2185 1920
www.staatsoper.bayern.de
Lothengrin: by Wagner. Peter Schneider conducts, in a staging by Götz Friedrich. Cast includes Adrienne Pieczonka and Waltraud Meier; Jan 15, 19

NEW YORK

DANCE
New York City Ballet, New York State Theater
Tel: 1-212-870 5570
Celebrating Five Decades of Repertory: New York City Ballet has the largest repertory of any dance company in the world. Continuing the celebration of its 50th anniversary, it presents a selection of works from that repertory, including revivals of *Bugaku*, *Irish Fantasy* and Balanchine's *Liebeslieder Walzer*;

Jan 13, 14, 15, 16, 17, 19

EXHIBITIONS
Metropolitan Museum of Art
Tel: 1-212-879 5500
www.metmuseum.org

● Dosso Dossi, Court Painter in Renaissance Ferrara: Dosso Dossi was the last of the Ferrarese painters, much influenced by Giorgione and Titian. This exhibition includes rarely lent masterpieces from the Borghese Gallery in Rome and other European collections; from Jan 14 to Mar 28

● Heroic Armour of the Italian Renaissance: Filippo Negroli and His Contemporaries. Comprehensive survey of the classically inspired armour made by the most celebrated Italian armourer of the 16th century. Includes more than 60 richly decorated suits of armour, worn by Renaissance kings and captains. Includes public and private loans from Europe and North America; to Jan 17

● Sacred Visions: Early Paintings from Central Tibet. 80 works from the 11th to the mid-15th century, including thangka (paintings on cloth), painted book covers and related sculptures; to Jan 17

OPERA
Metropolitan Opera, Lincoln Center
Tel: 1-212-362 6000
www.metopera.org
● Die Fledermaus: by J. Strauss. Revival conducted by Patrick Summers. Cast includes Carol Vaness, Jochen Kowalski and Bo Skovhus; Jan 14

● Werther: by Massenet. Donald Runnicles conducts a staging by Paul-Emile Deiber. Cast includes Susan Graham and Thomas Hampson; Jan 15, 19

PARIS

CONCERTS
Salle Pleyel
Tel: 33-1-4561 6589
Orchestre de Paris: conducted by Lorin Maazel in works by Weber, Debussy, Schubert and Ravel; Jan 13, 14

PRAGUE

DANCE
National Theatre of Prague
Tel: 420-2-2108 0131
www.nat.cz/en
The Nutcracker: by Tchaikovsky, in a staging by Russian choreographer Jurij Grigorovic, with sets and costumes by Simon Virsaladze; Jan 15, 16

ROME

EXHIBITIONS
Palazzo delle Esposizioni
Tel: 39-06-474 5903
Valori Plastici: taking its title from that of a short-lived magazine published by Roman art dealer Mario Broglio, this show includes sculpture and paintings, mainly by Italian artists, but also including works by Picasso, Klee and Grosz; to Jan 18

Palazzo Ruspoli
Tel: 39-6-6830 7344
www.palazzoruspoli.it
The Denis Mahon Collection: last stop for the touring exhibition of

more than 80 Italian baroque paintings collected by Denis Mahon. Includes works by Guercino; to Jan 15

WASHINGTON

OPERA
Washington Opera, Kennedy Center
Tel: 1-202-295 2400
www.dc-opera.org
The Crucible: by Robert Ward. New production by Bruce Beresford, conducted by Daniel Beckwith, with sets and costumes by John Stoddard. Cast includes Kimm Julian and Susan Tibury; Jan 15, 17

TV AND RADIO

● **WORLD SERVICE**
BBC World Service radio for Europe can be received in western Europe on medium wave 648 kHz (463m)

EUROPEAN CABLE AND SATELLITE BUSINESS TV

● **CNN International**
Monday to Friday, GMT: 08.30: *Moneyline* with Lou Dobbs 19.30: *Business Asia* 22.00: *World Business Today Update*

● **Business/Market Reports**
05.07: 06.07: 07.07: 08.20: 09.20: 10.20: 11.20: 11.32: 12.20: 13.20: 14.20

At 08.20 Tanya Beckett of FTTV reports live from LIFEE as the London market opens.

COMMENT & ANALYSIS



MARTIN WOLF

Too little, too late

The Bank of Japan's intervention against the yen is not enough. It should drive the yen and long-term interest rates down

The decision of the Bank of Japan to intervene in the currency markets yesterday is too little and comes too late. The passivity of the Japanese authorities in the midst of an unfolding disaster remains astounding. It is also highly dangerous. Between the beginning of August and this Monday, the yen appreciated 35 per cent against the dollar. Since late September, the market in Japanese government bonds has collapsed, with yields rising from 0.75 per cent to 2 per cent (see chart). But this happened to an economy already in the grip of deflationary pressures: wholesale prices fell 3.5 per cent over the year to November; consumer prices rose only 0.8 per cent; and broad money grew just 4.5 per cent.

In 1998, Japanese real domestic demand contracted by over 3 per cent. Given the tightening in monetary conditions that has occurred, as both the yen and long-term interest rates have soared, there is a strong chance that demand and output will contract sharply this year, as well.

Two questions arise. First, why should the Japanese authorities have tolerated the rise in the yen? Second, what are the implications for the world economy, above all the US?

One justification for the Japanese inaction, until yesterday, is that the strong yen helps Japanese banks meet internationally mandated capital adequacy ratios. It does so by raising the value of yen-denominated bank capital against foreign-currency assets. This argument is not convincing, however, since the higher exchange rate is likely to impair the quality of yen-denominated assets. Another excuse might be

that the strong yen raises Japanese real incomes, via the improvement in the terms of trade, and these higher incomes will then lead to greater spending. But this ignores the depressing effects on real incomes of the squeeze on profits in companies producing tradeable goods and services, including those sold on the domestic market.

A third justification might be a desire to have a deep and prolonged recession. Some Japanese seem to believe radical structural reforms will only follow a breakdown of the existing economic, social and political order. If such thinking is behind current policy, the implications are frightening.

A fourth justification, consistent with prime minister Keizo Obuchi's remarks during his tour of European capitals, is that a strong yen helps make the currency more globally important. Many Japanese fear the euro will reduce the yen to an also-ran, but they also see the euro's launch as an opportunity to limit the dollar's dominance. They may even be prepared to sacrifice their economy to

such yen diplomacy. A final possibility is that the tightening in monetary conditions is not deliberate. It is not so much that the authorities want the yen to be strong as that they are unwilling (or unable) to take the measures needed to keep it weak. With a current account surplus of over 3 per cent of gross domestic product, the Japanese must be steady net purchasers of foreign assets if the yen is not to appreciate. Whenever the outflow is disrupted, as it was by the turmoil of late 1998, the authorities must intervene. Inaction then ensures a self-reinforcing appreciation, with Japanese investors postponing foreign investment in the expectation that assets will be still cheaper tomorrow. Whatever the reason for their inaction, the authorities will not apparently deliver the only policy likely to halt the economic slide: a radical monetary expansion by the Bank of Japan, designed to drive both the yen and long-term interest rates down. This would be the best thing to do. It is not, it appears, about to happen, at least until the slide in

output accelerates. Given the strong yen and the government's unwillingness to do much to reverse it, further declines in the Japanese economy seem even more likely than a few months ago. This is bad for Japan. But how bad is it for the rest of the world?

Weak Japanese demand is damaging, as are higher Japanese long-term interest rates. But Asian economies have been helped to lower interest rates by the yen's strength, since this tends to strengthen their currencies against the dollar. The most important issue, however, is how the yen strength and fragile Japanese demand affect the global locomotive: the US.

Last year US final domestic demand rose some 5 per cent, while private consumption grew almost as quickly. For the rest of the world, the impulse from the US has come via the deterioration in its external balance, with a current account deficit of around \$200bn (2.7 per cent of GDP) before year-end. This is still a large deficit, but it is much smaller than the one in 1998.

Behind this extraordinary surge in spending is a private financial deficit running at an unprecedented 4 per cent of GDP. And that, in turn, has been driven by the rise in stock market wealth. Analysis by London-based Phillips & Drew suggests that the high value of stocks has boosted the combined total of consumption and investment spending in the US by around 4 per cent. In essence, it has allowed the private sector, as a whole, and households, in particular, to raise ratios of debt to income to unprecedented levels, while sustaining net worth at a postwar high.

This US evolution is triply unsustainable. First, the private sector will, in the long term, cease to be a net borrower on this unprecedented scale. Second, as is argued by Jim O'Neill for Goldman Sachs and Tim Congdon for London-based Lombard Street Research, the current account deficit, which is the external counterpart of the private sector deficit, is unsustainable. Third, the present stock market level cannot endure indefinitely.

What is unsustainable will not last. What makes this point so potent in this case is that if the engine of US dynamism is to continue, the imbalances must become still bigger.

The reason for this, put forward in the paper from Phillips & Drew, is that for the stock market to remain so remarkably buoyant the US economy must expand at least in line with trend. Given both the deteriorating external position and tight fiscal policy, US private spending must therefore grow faster than real disposable incomes. So private savings must fall further – or rather, dis-saving must rise further. If the US private sector is to expand demand in relation to disposable income, it needs a further big rise in the stock market. Thus the needed spending growth will happen only if the stock-market's bubbling valuations rise.

The danger is that the US market will come to an end before the rest of the world picks up. But that is just what the over-strong yen seems to threaten: a weaker dollar makes it more likely that the inflationary pressures that are now hidden within the economy – in the rapid growth of broad money, the low rate of unemployment and rising wages – will emerge before demand is on a firmly expansionary course elsewhere.

A stronger yen that does not reflect a robust Japanese economy, but rather private unwillingness to put more money into US assets, is precisely what the world does not need. The Japanese authorities were right to intervene. For their own sake – and for that of the world – they need to intervene far more aggressively in the weeks ahead.

America and the World Economy, Bill Martin and Wynne Godley, Phillips & Drew, December 1998. "US Budgetary Payments - Unsustainable," Jim O'Neill, Goldman Sachs, January 1999. "Totally Unsustainable," Tim Congdon, Lombard Street Research, December 1998.

Martin.Wolf@ft.com

LETTERS TO THE EDITOR

IFAA supports government timetable for pension mis-selling compensation

From Lord Chelmsford.

Sir, I refer to the article on the pensions mis-selling review in your Saturday edition ("Legal threat to mis-selling review recedes", January 2).

I trust you will allow your readers to learn how the IFAA Association, and only the IFAA Association, has campaigned to separate claims against our members for negligence from claims relating to economic loss.

At no time has the IFAA Association made any attempt to avoid claims made against its members which arise out of negligence.

Indeed, where negligence exists, it has done everything that it can to support the government's timetable for compensation.

Indeed, our support extends to claims arising out of negligence in both Phase 1 and Phase 2 of the government programme.

The one area where we have always differed from the regulator and government concerns economic loss. All pensions are based on certain actuarial assumptions.

These are advised to the holders as is the presumption that over the period of contributions, the obb and flow of stock market performance, rates of interest and annuity rates at retirement will allow the final result to be crudely accurate.

Today, bond yields are low with the resultant effect that current annuity rates are the lowest in living memory.

This was not the situation when the majority of cases now to be reviewed under Phase 2 were taken on.

In effect the regulator, backed by the government, is demanding that financial advisers should underwrite the risk of loss caused by conditions completely outside their control.

We do not see this as a liability to the IFAA and have said so forcefully. In any case, who knows how the economy will be when individual pension payments start? For Phase 2 cases, in the main, this will be as much as 25 to 30 years hence.

The holder may then do much better than expected. Any mid-term position seems to us to be irrelevant to the government's mis-selling campaign – a campaign which we support.

Finally, contrary to the implication of your article, the IFAA Association is both caring of its members and growing year on year. We now represent 2,700 firms which is over 50 per cent of the market.

Lord Chelmsford, President IFAA Association, 41/43 Praed Street, London W2 1NE.

MEPs to step aside at polls

From Mr James Moorhouse.

Sir, With regard to the European parliament's censure motion against the European Commission, ("Schröder backs Commission", January 12) I would like to emphasise that this is not motivated by the desire of MEPs to raise their profile before the European elections.

A great many MEPs, such as myself, are standing down, and we feel equally strongly that the Commission should be censured in some way.

James Moorhouse, 145 Deodar Road, London SW15 2NU. Tel: 020 8451 1111. Fax: 020 8451 1112. Email: j.moorhouse@bt.com

Wall Street sheds risk to avoid hedging it

From Mr Inge Kaul.

Sir, The last column of the Financial Times of January 6 applauds Wall Street for having done "a good job in managing risk" and "turned in a record profit for 1998".

The column argues that several factors helped: mergers and acquisitions; controlling compensation costs; and a more resilient business mix.

The argument skips the important point: shedding the costs of financial crisis – to borrower countries and within them to the poorest. You will no doubt recall that only a few months ago the pages of the Financial Times were overflowing with outcries over 20m people

being pushed into poverty in Indonesia and other social ill-effects of the Asian financial crisis.

It thus seems that international bail-out packages allowed Wall Street to get away "without a hair-cut", while others lost their last shirt.

Thus, Wall Street excels in shedding – not just in hedging risk.

Inge Kaul, director, Office of Development Studies, United Nations Development Programme, 1 UN Plaza, New York, NY 10017, USA.

Number One Southwark Bridge, London SE1 9HL

We are keen to encourage letters from readers worldwide. Letters may be sent to +44 (0)171 553 3000 (not to 0171). A small letter will be published. Publishers' letters are also available on the FT web site, <http://www.ft.com>. Translations may be available for letters written in the main international languages. Fax: +44 (0)171 553 3000. Letters should be typed and not handwritten.

Countdown to euro

The UK government is working on the practicalities of joining Emu, but there is disagreement about how quick the transition should be, says Kevin Brown

Less than two weeks after the launch of the euro, pressure is growing on the UK government to announce a target date for joining Europe in economic and monetary union.

The Confederation of British Industry and the British Chambers of Commerce, the two biggest business organisations, are urging Tony Blair, the prime minister, to end uncertainty about Britain's intentions. "The government says it will only join when the economic conditions are right. But much of business wants a firmer timetable. A Mori poll of City companies this week found 50 per cent support for UK membership by 2001, and 80 per cent backing for membership during the next parliament, which must begin by 2003 at the latest."

Of course, there are also powerful contrary voices. The Institute of Directors is firmly opposed to early membership, and the Business for Sterling lobby group has mobilised heavyweight figures in defence of the pound. Nevertheless, in private, cabinet ministers think there is a business majority for early UK membership.

In sharp contrast to opinion polls showing the consistent – and growing – hostility of the population at large.

The government has been reluctant to spell out its intentions for fear of handing a powerful political weapon to the Conservatives. Nevertheless, substantial work is being done behind the scenes on the practicalities of Britain's decision to join.

From the business perspective, the most important debate is going on in a series of committees and working parties drawing up a National Changeover Plan. This will provide the crucial template for the replacement of the pound by the euro, should Mr Blair win a referendum on membership of Emu. It will dictate, for example, whether businesses have years or months to get ready, and whether they will be forced or merely encouraged to display dual prices during the transition.

The plan, which is being drafted by the government's standing committee on Emu,

chaired by Gordon Brown, the chancellor, is expected to be completed later this month or early in February. Much of the detailed work is being done by the chancellor's Business Advisory Group, a committee of business, trade union and consumer representatives, and eight working parties which are dealing with retailing, the retail financial sector, general business issues, public authorities, wholesale financial markets, legislation, notes and coins, and information and education.

Three main issues have emerged: ● The timescale. There was a near explosion in one of the committees when Treasury officials suggested that only eight or nine months might elapse between a cabinet decision and a formal locking of exchange rates.

Of course, there are also powerful contrary voices. The Institute of Directors is firmly opposed to early membership, and the Business for Sterling lobby group has mobilised heavyweight figures in defence of the pound. Nevertheless, in private, cabinet ministers think there is a business majority for early UK membership.

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years between a firm decision to enter and the locking of exchange rates, followed by a further 12-15 months before the introduction of notes and coins. This gives a maximum timetable of more than four years.

The argument being put by some bankers is that the growth of demand for euro accounts will be faster in the UK than in the first-wave countries because people will be familiar with the new currency. They say this could put great strains on the payments system. However, other bankers argue that a long transition period is unnecessary. The social security department and other public sector organisations are also thought to be uneasy about the timetable, for the opposite reason. They are thought to be uneasy about a short transition, in part because of their poor record of managing technological change.

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from six months to two. ● Dual pricing. Retailers want a voluntary code of practice to prevent abuses, rather than legislation. Consumers' representatives have said they may be willing to go along with a code because of the complexity of drafting legislation to cover everything from corner shops to personal pensions. However, they want strong legal backing, which would require some legislation. No decision has yet been made.

The exchange rate. Winning the referendum would be easier if the government were to announce the conversion rate for the euro in advance. "Business is likely to be in favour of joining at a rate of £1.30 to the pound but would be worried about competitiveness if the rate were set at, say, £1.46. The current rate is £1.42. This is likely to require complex negotiations with the 11 members of the euro-zone and the European Central Bank, which may not be completed before a referendum is held."

Business supporters of the euro say the best hope is that sterling over the next few years is both competitive and stable. Volatility might make the economic case for membership stronger, but it might also frighten cautious voters.

People on the working groups say there are signs that the plan may be fairly vague when it finally appears, probably next month, in part because of the sensitivity attached to anything that looks like a blueprint for Emu.

However, many also say they expect the pressure for firm planning – and a target date for membership – to grow quickly now that the euro is a reality. Far from being just another foreign currency, as some of the opponents of early UK membership describe it, there are signs that the euro is already being used within UK businesses, as big companies encourage smaller ones to invoice in euros as a way of limiting their currency risks. Presentation, enthusiasts say, may become irrelevant if the euro sweeps through British industry as quickly as many senior business people think it will.

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FINANCIAL TIMES

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Wednesday January 13 1999

Big Tobacco on the loose

British American Tobacco's proposed \$2bn (\$2.2bn) takeover of Rothmans has been a hit with investors. BAT's shares were up sharply yesterday for the second day running. But there are some quibbles, or there should be.

The deal furthers BAT's chief ambition - shared by Philip Morris, its fellow duopolist in global tobacco - of exploiting growing markets in the developing world. Tobacco is a morally dubious business at the best of times. Is not targeting the world's poor more dubious again?

This is not to subscribe to the naive belief - still quite widely held - that Big Tobacco is out to seduce the world's innocents into western vices. Tobacco is long established as a universal drug. In many developing countries, the main thing stopping people from smoking more - or switching from nasty local tobacco to the higher-quality western version - is that they cannot yet afford it.

Much the biggest prize in the world tobacco market is China, which consumes a third of the world's cigarettes and is almost wholly supplied by the Chinese state monopoly. China used to be BAT's most profitable market, until its dozen-odd factories there were expropriated in the 1992 revolution. Should the company establish itself in the Chinese market, it would merely be recovering ground lost more

than two generations ago. But one must not be naïve in the other direction either. One former chairman of BAT had as his first post that of marketing manager for the company's Ethiopian monopoly. Plainly, his job was not to beat off the non-existent competition: it was to increase Ethiopian consumption of cigarettes.

In the developed world, there are two chief apologies for the tobacco trade. The first is that consumption is falling, or at worst static; the second, that consumers have been fully educated on the risks. In the developing world, neither necessarily applies.

This is not to say that western governments should intervene. It would help if the governments in the EU and US kicked their insidious habit of subsidising domestic tobacco production as a means of catching votes. But to hinder exports would be to patronise the developing world's consumers, to say nothing of its governments.

The question is rather one for individuals. If people choose to invest in tobacco companies, or to work for them, that is their own responsibility. They might care to reflect, however, that profits from sales to developed countries is questionable enough. Specialising in the third world is that little bit more doubtful again.

State of union

US voters re-elected Bill Clinton as president in 1996, and show no sign of wanting him removed from office. They have every right to expect him to deliver his state of the union address, on schedule, next Tuesday. This would be a welcome signal that, despite Mr Clinton's trial in the Senate, the president and the House of Representatives are getting on with the work of government.

The state of the union address allows the president to speak to Congress and the public, and to lay out the White House agenda for the coming year. In past addresses, Mr Clinton has excelled - even last January, just days after Monica Lewinsky first became a household name. A number of congressmen, senators and pundits say that he should forgo the chance to do so again.

Some are motivated by dislike for Mr Clinton, some by the chance for partisan advantage, and some by a genuine belief that an impeached president does not deserve to give the address. Some think Mr Clinton should delay it until after the trial, and some that he should cancel it altogether. All are wrong-headed.

Mr Clinton has been impeached by the House of Representatives. There must now be a trial in the Senate. This is not an illegitimate process, nor a needless distraction from the business of government. It is what the constitution demands. In the process, however, Washington must not become a policy-free zone.

The founding fathers constructed a balance to prevent Congress from unseating a president and overturning the will of the people on a partisan whim. It is for the Senate to judge the president. Despite his reckless and dissembling behaviour, Mr Clinton remains innocent of high crimes and misdemeanours unless the Senate chooses to convict him by a two-thirds majority. The trial should be concluded as quickly as fairness allows. Until then, Mr Clinton must continue with his elected duties.

On Tuesday, he should set aside political embarrassment, and lay out his priorities for the nation. This will show the US public and the watching world that the business of government can continue at the same time as the trial. More important, there is much work to be done. The world remains a dangerous place. It is high time Mr Clinton and Congress sorted out the US trade agenda. At home, Social Security and Medicare are concerns.

Dennis Hastert, the new speaker of the House, has pledged that the Republican majority will now concentrate on legislation. This is a welcome development. The last Congress achieved virtually nothing of note - except the first impeachment since 1868. With the Senate preoccupied, Mr Hastert and his colleagues in the House must set out the Republican agenda. But first, on Tuesday, they must listen to Mr Clinton.

Africa at war

Sierra Leone's descent into anarchy is more than yet another tragedy on a battle-scarred continent. It marks the failure of a vital African-led peacekeeping initiative, and threatens the transition to democracy in Nigeria. If Africa cannot keep its own house in order, and outsiders can do no better - as the collapse of the UN-supervised peace plan for Angola suggests - prospects for the region seem bleak indeed.

It is nearly a year since the west African peace force known as Ecomog launched its onslaught on the Sierra Leone capital of Freetown, paving the way for the return of the democratically elected government of President Ahmed Tejan Kabbah. They won the capital, but have lost the country. Ecomog's military campaign lacked a political strategy with which to secure a settlement with the rebels, while the government appealed in vain to the international community to help provide the resources to rebuild a collapsed state.

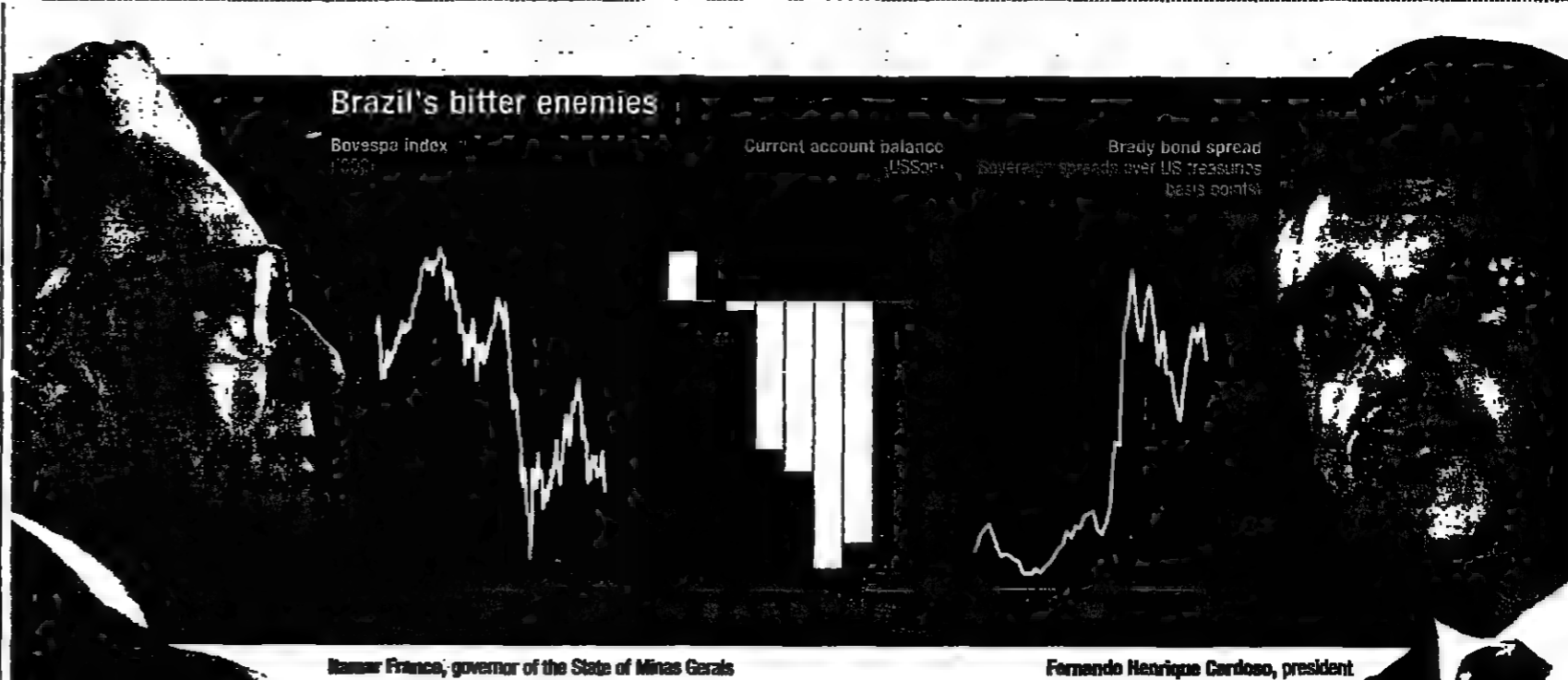
For Nigeria, whose 15,000 troops make up most of the force, the outcome has been humiliating and dangerous. Prices for oil, the country's main export, are the lowest for 12 years. To make matters worse, protesters in the oil-producing Delta region who are demanding a higher share of government spending have managed to cut production by a third.

Nigeria's military leader, Gen Abdulsalam Abubakar has hinted that troops may be deployed in the Delta. But an army fighting on two fronts and an economy in crisis are not conducive to a stable transition or a secure democracy.

Instability in Nigeria would be a devastating blow to a continent already beset by conflict. The war in the Congo, formerly Zaire, has sucked in troops from at least six other countries. Sudan's civil war shows no sign of ending. Eritrea and Ethiopia remain on the brink of resuming their futile border battle, while Somalia has been all but abandoned to its fate.

It need not be so, as Mozambique and Namibia have shown. In both countries substantial UN monitoring forces presided over the end of civil war and the holding of multi-party elections. But the key to success was the quality of the diplomacy, and the willingness of the US and the UN to focus attention on what had seemed intractable problems.

Since then Africa has slipped down the international agenda, while the collapse of Sierra Leone is a further warning that its need for assistance is greater than ever. It would be disastrous if it takes the collapse of Nigeria's transition before the mind of the international community is concentrated on a continent slipping into war.



Brazil's tough year

The president's austerity plan is under attack from an unlikely quarter - a tempestuous state governor who was once Mr Cardoso's boss, say Geoff Dyer and Stephen Fidler

When Fernando Henrique Cardoso began his second term as Brazil's president on New Year's day, he knew he was in for a rough ride. Ahead of him lay difficult talks with Congress on a yawning fiscal deficit. With the economy sliding into recession, he was braced for protests from trade unions and industrialists. He had promised to fulfil the International Monetary Fund, and he knew investors would be poised like hawks over his every move.

What Mr Cardoso could not have foreseen was trouble from an old boss and purported political ally. Five years ago, Ramez Franco was president of Brazil and Mr Cardoso was his finance minister. Appointing Mr Cardoso, architect of the Real plan which stabilised Brazil's currency and defeated inflation, was perhaps the only notable decision of Mr Franco's presidency.

Mr Franco is a tempestuous man. In his two and a half years as president, he went through six finance ministers. Mr Cardoso was his fourth. He publicly rebuked one minister after finding out, from his maid, that gas prices had gone up.

So it was not entirely out of character for Mr Franco to declare, in his first week as governor of Minas Gerais, a 90-day moratorium on the state's \$218.5bn (\$23bn) debt with the federal government.

Brazilians are still debating whether the impulsive Mr Franco really thought through the consequences for Mr Cardoso, and for the country as a whole, of halting payment on the state's debts.

Mr Franco claims the state's coffers are empty. Tax revenues have dwindled so much that Minas Gerais, a wealthy industrial state, has been hard-hit by the economic downturn. Mr Franco claims that if he were to honour the monthly interest payments of \$300m on the state's debt, there would be no money to buy food for prisons or to pay the salaries of some civil servants.

The government says this is nonsense. The debts of Minas Gerais were restructured over the past two years, and bear an interest rate of between 6 and 12 per cent, well below market interest rates of 30 per cent.

What is perhaps surprising is that the near-paranoid Minas Gerais moratorium has provoked among investors. Brazilian shares, which were 7.65 per cent lower early yesterday afternoon, have fallen 19.2 per cent since Mr Franco dropped his bombshell last Wednesday. Spreads of some Brazilian bonds have widened to levels not seen since the Russian crisis.

Brazilian markets often react in an exaggerated fashion to bad news. The Minas crisis might blow over in a few days. However, the moratorium has exposed real concerns about Brazil. It has underlined the extent of the political and economic obstacles facing Mr Cardoso as he tries to guide his country away from a prolonged economic crisis.

It is not just the Minas situation that is making investors nervous. It is the cumulative effect of all the political problems," said Francis Freisinger, economist at Merrill Lynch in New York. Brazil, which is nursing a budget deficit of over 8 per cent of gross domestic product, has been in the spotlight since it narrowly avoided a forced devaluation of the real in the aftermath of the Russian debt default in August.

However, the real significance of the Minas Gerais stand-off lies in what it says about the state of the economy. Mr Franco's moratorium is the first major political challenge to Mr Cardoso's austerity strategy following the panic in emerging markets last summer, when Brazil came close to having to devalue the Real.

Higher interest rates caused industrial output to be 9.2 per cent lower in October 1998, compared with October 1997. Economists are forecasting the economy will contract between 1 and 4 per cent this year, even if the government's austerity plan works.

The brunt of the impact has been felt by the car industry, which is suffering from significant over-capacity after receiving \$200m of investment during the last four years. Car sales dropped 21 per cent last year.

Brazilian consumers, who are still adapting to the world of low inflation, have also suffered under the burden of higher interest payments. Defaults on consumer credits are rising. Nor did Christmas bring much relief to the retail sector, with sales down 5.2 per cent compared to the previous year, according to a survey by the São Paulo federation of commerce.

Last October, the government narrowly averted a currency crisis through four responses: high interest rates to slow capital flight, the promise of \$328bn of budget cuts this year, long-term fiscal reform, and a \$41.5bn package of emergency aid led by the IMF.

However, the measures have so far not restored the government's credibility. Foreign reserves, the barometer of international confidence, fell by \$7bn between November and December. A further \$1bn has left the country so far this month.

The Minas problem comes at a time when the government's credibility was already being questioned," says Dany Rapoport, chief economist at Santander Investment in São Paulo. Even before the Minas moratorium, Mr Cardoso knew that without rapid progress on the fiscal front, capital flight would not abate, high real interest rates would continue to stifle the economy, and the IMF might withdraw its support. Now, as he tries to muster support for his fiscal plans, he faces a new and potentially dangerous political headache.

The last thing Mr Cardoso wants is to renegotiate the debts of Brazil's 27 states - again. Over the past two years, the federal government had already refinanced debts 24 states totalling

the PMDB have so far declared their support for the government and political analysts believe the measures will pass comfortably. A stand-off between federal and state governments could have a lasting impact on Brazil's fiscal plans. The \$282bn cuts to this year's budget are supposed to be only the starting point in Brazil's fiscal adjustment - an exercise in buying time while more permanent reforms are implemented.

These reforms include a comprehensive shake-up of the country's byzantine tax structure, which will not be passed without the co-operation of state governments. In addition, the government wants to reduce the tax revenues which are passed on to the states. "There will be a war in Congress over this," said Carlos Lopes, a political analyst in Brasília.

From the point of view of foreign banks, the timing of the Mr Franco's moratorium could not have been worse. Having sharply scaled back their exposure to Brazil in the second half of last year, banks had been contemplating since the start of the year whether to increase loans again. Economists believe the Minas Gerais fiasco could also delay the return of many Brazilian borrowers to international capital markets.

The developments in Minas have also caused concern in Washington, where the IMF and the Treasury appear to be adopting a "wait-and-see" approach. Officials in Washington have known there would be difficulties in the implementation of the austerity programme.

The IMF has received assurances from Brasília that the dispute with Minas will not affect the programme. Officials still expect the second tranche of funding to be released after a review in February of Brazil's fiscal accounts. However, the more obstacles Brazilian politicians throw at Mr Cardoso, the more nervous Brazil's international sponsors are likely to become.

The president has to find a way to restore the confidence of foreign investors that would in turn allow funds to return to Brazil and interest rates to fall. If he fails, the pressures on his austerity strategy will grow. Eventually they will become unbearable.

An early test of the Franco effect will come today, when a special session of the lower house is due to vote on a new set of tax increases to make up for the delay in approving the financial transactions tax. The leaders of

OBSERVER

Time for Teletubbies

It's 30 years since John, Paul, George and Ringo took North America by storm. Now another Fab Fourcome are following the trail to global fame: no, it's not the sparky Spice Girls but the Teletubbies, those monochrome roly-poly creatures who are such a hit with the under-fives.

They're Winky, Dipsy, Laa-Laa and the other one who are going down like soda-pop with US youngsters. Investors in Handieman, the US company that holds 75 per cent of its-Baby Entertainment, which in turn owns the North American rights to the Teletubbies, are also getting excited.

The result is that Handieman chief executive Stephen Storme has seen his share price leap to the "eh-oh" phenomenon. There's talk of \$20m sales of Teletubbies merchandise this year and Handieman is singled out by this month's individual investor, an American glossy for private punters, as one of the "magic 25" stocks to watch; others include corporate giants such as Merrill Lynch and Time Warner. Who says you can't have your tummy

Anglo-French paper-maker Arjo Wiggins Appleton but why does the company keep wiping the pad clean when it comes to executives?

Must be something to do with that famous clash of cultures that's seen off most attempts to create corporate *entente cordiale* across the channel. Never mind the gaping chasm in approach to corporate governance, it's just that the Brits know better than the French, and vice-versa.

It's less than two years since Philippe Baylier, a paper merchant rather than a paper maker, took the chief executive's chair from Alain Soulas, who'd left suddenly a year earlier with a £1m-plus severance package. Before him, there was Stephen Walls who left after the board blocked his own growth strategy. Baylier's elevation, announced before the departure of combative chairman Bob Stenham, saw lots of fancy talk about a more aggressive, strategically-minded approach to management. As for giving the group a new direction, the reality is that things have since more or less stood still.

Now Baylier is on his way with a pay-off as part of one of those reorganisations that means there's no need for a chief executive. Ken Minton - who left a mixed legacy behind him as chief executive of Laporte - becomes executive chairman. So it falls to Minton, 62 on Sunday, to run in his new multi-national

management and to attempt to reconcile the various needs of the mixed bag of Arjo Wiggins investors on both sides of the Channel. If precedent is anything to go by, he might not have long to make it work.

Mind your backs

European commissioner and one-time leader of Britain's Labour party Neil Kinnock has a date in London tomorrow. But the corruption row in Brussels means he won't be keeping it.

The event in question is the 10th anniversary of the formation of the left-of-centre Institute for Public Policy Research, one of the many thinktanks spawned in recent years in the UK. When it was set up, Kinnock was vowing to win the next general election outright - he didn't - starting a doomed drive to recruit 1m party members and trying to find a defence policy that frightened the enemy more than the British public.

Transport commissioner Kinnock was due to join in this week's celebrations, speaking on "the main challenges facing the EU in the next decade" - and whether the UK will be sidelined if it stays outside the single currency. But he's had to cancel at the last moment. With the European parliament threatening to make commissioners on the same day, following accusations of widespread corruption, Kinnock has decided it would be

best to stay in Brussels for a while to watch his own back. Some things never change.

What a treasure

He's been attacked from all sides and abandoned by traditional allies. But Israeli prime minister Benjamin Netanyahu seems to have found a friend and ally in his finance minister.

Until this week, Netanyahu has had no problems with slashing the state budget. But things seem to have loosened up ahead of the national elections in May, so much so that he's encountered no opposition from his treasury in launching a spending spree.

After pushing through a bill giving free education for pre-schoolers, Netanyahu was asked if his excellent relationship with his finance minister had made the initiative easy. "Look, I must tell you," he said, "We really see eye to eye." Not surprising, really. Since Yaakov Neeman resigned as finance minister, Netanyahu has been doing the job himself.

Net effect

Which reminds Observer of a rumour doing the rounds, to the effect that the British Broadcasting Corporation, Netscape and Yahoo are in merger talks. They've already agreed the name - BB Net'n'Yahoo.

Financial Times

100 years ago

The Odds Of War
Following on the Hispano-American war we saw many paragraphs about the mortality on the winning side, meant to show that, as a whole, the expedition had been nearly as favourable to life as an excursion arranged by Thomas Cook. It is not wholesome that we should under-estimate the cost of war, and a recent calculation by the New York Life Office deserves to be considered. Taking the Federal side in the American Civil War, it is shown that every man of 25 who enlisted had a greater chance of death over three years than a man of 68 who pursued his ordinary work at home.

50 years ago

Bandits in Malaya
Singapore, Jan. 12. Eight months after the emergency started in Malaya with the murder of three European planters, significant facts emerge. First, the problem of ridding the country of terrorists is proving much bigger and more complicated than was at first imagined. Second, the Communist attempt to disrupt production of tin and rubber has proved singularly unsuccessful.

THE LEX COLUMN

Bank statement

As lines in the sand go, the Bank of Japan's intervention to halt the yen's appreciation was significant. But how long will it be before it gets washed away? The success rate of previous interventions does not leave much room for optimism.

True, last summer's intervention - to strengthen the yen - was effective. But that was different. The US was sufficiently rattled by the risk of a Chinese devaluation to step in to the markets alongside the BoJ. Such co-ordinated action this time round is hampered by other factors weighing down on the dollar - such as investor concern over Brazil and the US trade deficit.

The credibility of the BoJ's move also depends on what happens on its home turf. Although the weakness of the Japanese economy should, longer-term, lead to currency weakness, short-term factors are conspiring to keep the yen strong. Fear is one. Japanese companies or individuals, stung by the recent currency appreciation, may still feel the need to hedge against further appreciation by buying yen assets. The recent jump in bond yields is another incentive to preferring Japanese over US or European assets. And the markets know the Japanese government can do little to underpin the BoJ's move: further monetary loosening is tricky when short-term interest rates are already near zero.

The BoJ may therefore have to follow yesterday's move with more of the same. Even that will not, in itself, be enough to give Japanese exporters the sustained yen weakness they want. But it may at least help contain sharp and damaging currency swings. A case of being thankful for small mercies.

Internet stocks

Rupert Murdoch thinks that Internet stocks are overvalued. Well, thank heavens for that! The News Corporation chairman's comments helped deflate some web company share prices yesterday - Amazon.com is now up by a mere 50 per cent in a week. Imagine where it might be if Mr Murdoch had spotted value in the sector.

Unfortunately, Mr Murdoch's verdict is of little practical help to those investors who have so far missed out on the online boom. By all rational yardsticks the cur-



rent crop of quoted online companies has long been hugely overpriced. On the other hand, there are few alternatives to tapping into the potential of the worldwide web. Those companies that are building strong brands or superior customer service may well go on to become hugely profitable. But current valuations make sense only if everyone in the industry turns out to be a winner, which is a logical impossibility. The internet bubble will burst and now is not the time to try to play these stocks.

Of greater use is Mr Murdoch's prediction that the internet will destroy traditional companies as it subsumes their business. Morgan Stanley will hardly be quaking in its boots because internet broker E*Trade is starting up a low-cost online investment bank. But thinner underwriting margins are sure to follow. Investors should at least make sure that their traditional investments are getting wise to the web.

Tractebel

Now is not the best time, politically, for Suez Lyonnaise des Eaux to have to make another move in Belgium. The leading Bel 30 index has lost half a dozen constituents in the past year, mainly through takeovers by French companies. For Suez Lyonnaise to increase its grip not only on Tractebel, the international energy group, but on the domestic monopoly Electrabel would be particularly sensitive in the run-up to Belgian elections in June. However, it may have to.

The issue is Tractebel's desire to merge with Electrabel (market value €22bn) in which it already has a near 40 per cent stake. This makes sense. Investors in both Tractebel and Electrabel would be best served if the two co-operated outside the country and rationalised their efforts inside it. The sticking point is that such a merger would dilute Suez Lyonnaise to only about 30 per cent of the enlarged group.

Suez Lyonnaise will either have to support Tractebel's merger with Electrabel - but buy sufficient equity in the merged group to keep its stake above 50 per cent - or risk snubbing Philippe Bodson, Tractebel's head. This may prompt his resignation, which would be bad news for Tractebel shares.

Arjo Wiggins Appleton

Arjo's shareholders can be forgiven for treating its promise to turn over a new leaf with some cynicism. Since BAT's former British and American papermakers merged with Arjomart of France in 1991, repeated promises of reform to reverse the sliding share price have not been worth the paper they were written on. The plan of Ken Minton, chairman, to regroup Arjo into three autonomous units is partly an admission that the original companies were never properly integrated, and partly an attempt to smooth the path of anyone trying to buy part of the business. There will be cost savings too, but as the company has not yet estimated these it appears they were not the rationale.

The restructuring leaves Arjo with the challenge of putting together two diverse carbonless and thermal paper businesses on opposite sides of the Atlantic, with a declining market and no obvious trade buyer. Mr Minton might do better to recapitalise the division, by forming a joint venture with a financial partner attracted by its strong cashflow. The spin-off of the merchandising division, which now looks likely, may not have been possible under Philippe Beylier, who ran merchandising before moving into the chief executive's revolving chair two years ago. That does not mean that the group can do without a chief executive. Arjo still has much to do to make this proposal work in practice rather than just on paper.

China plans to lead way by issuing bonds in euros

Argentina and Philippines set to follow emerging market first

By Khazim Merchant

China is heading a trio of emerging market borrowers planning to launch bonds denominated in the new euro currency. The bonds would be the first in the euro by sovereign borrowers from emerging markets since its creation this month.

Bankers say Argentina is close to a final decision on a euro issue while the Philippines is to market a euro-bond early next month.

But the timing of the issues is likely to be set back by continuing uncertainty in emerging markets following the decision last week by the state of Minas Gerais in Brazil to suspend interest payments on local debts totalling R\$18.5bn (\$15.3bn).

The moratorium unravels markets at a time when Brazil was trying to overcome domestic opposition to a stringent, IMF-designed austerity package. The spread on the JPMorgan emerging market index has widened by about 200 basis points in the past five days.

"There is a queue forming for

emerging market debt issuance but Brazil has caused the illiquidity and volatility of the last quarter of 1998 to come back," said one economist.

Economists say the appetite for euro-denominated issuance by emerging market sovereigns will rise despite the Brazil setback. "There is no question that the euro will be established as the second preference for Latin American and Asian borrowers," said Stuart Parkinson, senior economist at Deutsche Bank.

Since last November Argentina, China and the Philippines have tapped the dollar markets, reopening a sector effectively shut off to emerging market borrowers since the Russian debt default in August.

Argentina has led the way with a \$1bn bond in November. A euro-denominated issue is likely to be of a similar volume. China launched a \$1bn bond last December, its first dollar bond since an unsuccessful bid in October 1997. The Philippines also launched a \$1bn bond last week.

Earlier this week Edgardo Espiritu, the Philippines' finance minis-

ter, said he was adding Goldman Sachs to co-lead manage the proposed euro-issue, along with Warburg Dillon Read and J.P. Morgan, which were awarded the mandate last August. China is thought to have awarded its euro issue mandate jointly to Merrill Lynch and Paribas.

Chinese officials have indicated their desire to add the euro to their portfolios as a counterweight to the dollar. The State Development Bank, China's main policy bank and lender for domestic infrastructure, recently said it would issue bonds denominated in euros if the opportunity presented itself.

This was a reference to the high spreads over US treasuries, which has made borrowing on the international capital markets prohibitive for China and other emerging market borrowers. "There is an investor perception that now is the time to get into the better quality Asian stories or credits which have turned the corner," said a banker in Hong Kong.

Bonds, Page 20

US warns Japan to cut back on steel exports or face retaliation

By Deborah Millington in Washington and Kevin Brown in London

The US bluntly warned Japan yesterday to cut steel exports quickly or face retaliatory action, as tensions between Washington and Tokyo moved to the centre of an escalating global dispute.

Charlene Barshefsky, the US trade representative, offered a sharply worded assessment of deteriorating Japanese-US relations after meeting Kaoru Yosano, the Japanese minister of international trade and industry.

"It is no secret that trade tensions between the United States and Japan are increasing quite dramatically," Ms Barshefsky said. "Steel is perhaps the most visible element of that."

This reflects increasing US concern about global dislocation in steel trading following the virtual collapse of Asian markets in the wake of the region's economic crisis. South Korea's Pohang Iron Steel

(Poco), the world's second largest steelmaker, said on Monday that it would cut exports by more than 5 per cent this year to avoid conflicts with the US. Dongkuk Steel, another big Korean producer, said it was also considering cuts.

The US has also had sharp exchanges with the European Union, which Washington believes is not soaking up enough Asian exports. The EU last week opened an investigation into alleged dumping by six Asian and east European countries.

However, Washington's war of words with Tokyo reflects the US administration's strong feeling that Japan has been the single largest contributor to the current pressures facing the US steel industry, where 10,000 jobs have been lost.

US officials claim that Japan alone accounts for almost half of the entire US import surge. In the first nine months of last year, Japanese steel imports rose more than 400 per cent. The US steel industry has filed three anti-dumping cases against

Japan, Russia and Brazil, demanding that the Clinton administration impose penalties of up to 200 per cent on certain types of imported steel. In a report to Congress last week, the government promised that the cases would be dealt with quickly.

Ms Barshefsky made clear that the administration was prepared to take further action if Japan's steel shipments did not fall. "We will, and the president is very clear about this, self-initiate trade cases against Japan if Japan's exports to the United States do not fall significantly and quickly," she said.

It was unclear exactly what form such action would take, although industry analysts suggested the US could extend anti-dumping charges to previously untargeted types of steel.

The administration could also initiate unfair trade practices investigations under Section 301 of the US trade law, aimed at Japan's steel industry.

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Greek defence minister Alex Tsoukalas, centre, opens a meeting of Balkan ministers in Italy yesterday. Peacekeeping agreement, Page 2

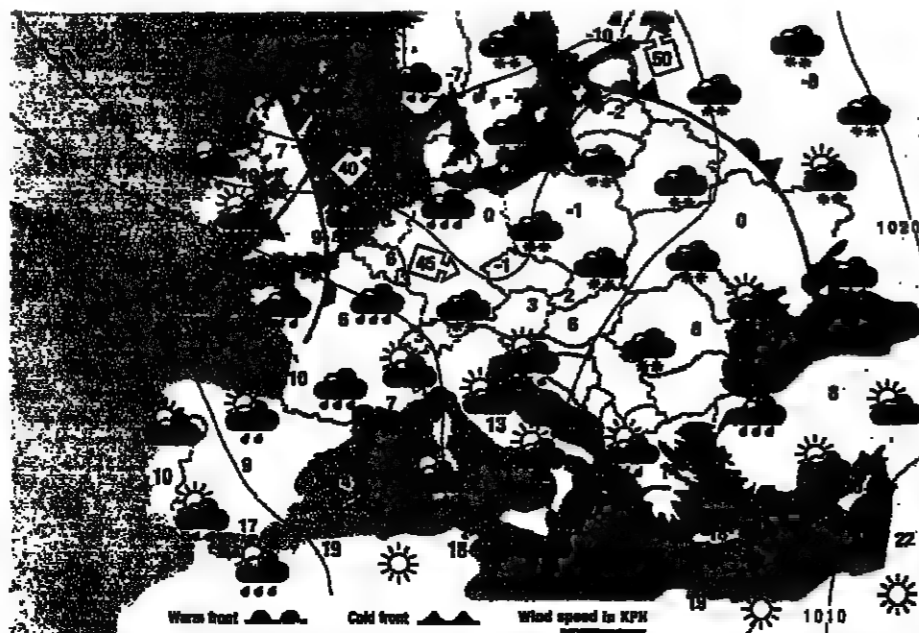
FT WEATHER GUIDE

Europe today

Scandinavia and eastern Europe will have widespread snow showers. The Low Countries and Germany will have rain and sleet during the afternoon. Austria and Switzerland will have sleet and snow showers. Northern France will be wet, but the south will be dry with sunny spells. Spain and Portugal will be mainly dry, apart from showers along the north coast. The Mediterranean will be mainly dry and sunny. There may be occasional showers in northern Italy and along the Greek Ionian coast.

Five-day forecast

Rain will move in from the west across northern Europe, bringing more snow to Scandinavia, eastern Germany and Poland. Mainly fine conditions in the Mediterranean will break down as showers develop over Italy on Thursday move to the eastern Mediterranean by the end of the week.



TODAY'S TEMPERATURES

Location	Temp
Abu Dhabi	25
Accra	25
Algeria	19
Amsterdam	10
Athens	14
Bahia	18
Bangkok	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27

CARD

Location	Temp
Berlin	11
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27

Sun

Location	Temp
Berlin	11
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27

Sun

Location	Temp
Berlin	11
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27
Buenos Aires	18
Bombay	27



Scania's Cat-Link V is the first passenger vessel to cross the Atlantic in less than three days. One of a new breed of ferries built by Incat, she's driven by four waterjets from Lips BV, part of John Crane Marine. Each jet handles a power output equivalent to twelve F1 racing cars, propelling over 72,000 litres of water per second to provide the wave-piercing thrust which enabled Cat-Link V to win the Blue Riband for the fastest North Atlantic crossing. She also set new records for her average speed of over 41 knots for the crossing and for the longest distance travelled in a day. Putting across the ocean with her awesome Lips waterjets, she's lapped up all the competition. John Crane is one of TI Group's four specialised engineering businesses, the others being Forsheda Polymer Engineering, Brandy and Dowdy. Each one is a technological and market leader in its field. Together their specialist skills enable TI Group to get the critical answers right for its customers. Worldwide.

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CROSSWORD, Page 22

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FINANCIAL TIMES COMPANIES & MARKETS

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WEDNESDAY JANUARY 13 1999

Week 2

THE LITCHFIELD GROUP OF COMPANIES
NO to monetary union
NO to VAT enlargement
NO to European tax control
NO to greater control by the Brussels bureaucrats
STREET: 100, BORN, DECEMBER 20, 1999, 10:00 AM

INSIDE

Roche watches its options shrink
Roche, the 102-year-old Basle pharmaceuticals group, which says it wants to be one of the big three pharmaceutical companies and has been tipped regularly as a potential bidder for medium-sized rivals, is seeing its options shrink as competitors around it pair off. Page 16

Lucent faces challenging acquisition
If Lucent Technologies, the leading US maker of telephone network equipment, is to acquire Ascend Communications, the data networking company, it will have to marry two business cultures as well as their technologies. Page 15

Japanese carmakers coy on mergers
Japanese carmakers, who did the industry's deepest slump in decades, have remained silent over last week's reports that they are in alliance negotiations with European and US partners. They would represent the easiest way to put them back on the road to recovery. Page 14

Biotech sector faces tough year
It will be a second tough year for biotechnology companies as financing becomes tight. Last year, initial public offerings were scarce, and groups that did put deals together saw prices plummet after coming to market. Page 15

BoJ to sell \$183bn of financing bills

The Bank of Japan is set to sell off its ¥20,000bn (\$183bn, £76.7bn) holdings of financing bills and short-term government securities. Plans by the government of Keizo Obuchi (left) to liberalise the ¥30,000bn TB market as well as the Bank's unease about the rise in its balance sheet triggered the move. The FB market had been dominated by the bank and government institutions. Capital Markets, Page 20

Bombay surge hit by profit-taking
Six weeks ago, the Indian BSE 30 index was near a five-year low, the government had been beaten in regional elections, and inflation was soaring. But stocks defied conditions to rise 30 per cent only to lose 78 points in profit-taking yesterday. Emerging Market Focus, Page 32

Sharp looks to counter yen rise
Sharp, the Japanese electronics manufacturer facing weaker-than-expected sales volumes, may shift production overseas and procure more parts in Asia following the strengthening of the yen against the dollar. Page 14

Cocoa group develops hybrid tree
The Cocoa Research Institute of Nigeria claims to have developed a hybrid tree, developed from 59 varieties, that combines longevity, low maintenance and disease resistance with frequent, faster yields. Commodities, Page 22

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Prada sells stake in Gucci to LVMH

By Alice Rawsthorn in London, Paul Betts in Milan and Samer Iskender in Paris

Prada, the Italian fashion group, made a profit of \$140m yesterday by selling its 9.5 per cent stake in Gucci, its arch-rival, to LVMH, the acquisitive French luxury goods group.

Patricio Bertelli, Prada's chief executive and husband of chief designer, Miuccia Prada, described the deal as "simpatico". He secretly purchased the Gucci shares for an average price of \$46 each last summer, but nursed a loss on the investment when its share price fell.

Gucci's shares soared after last Wednesday's disclosure that LVMH, which controls the Christian Dior and Givenchy fashion houses and Louis Vuitton luggage, had acquired a stake of more than 5 per cent. The news surprised Gucci.

Analysts suspect that LVMH, chaired by Bernard Arnault, bought more Gucci shares in the market last week. They estimate that, with Prada's former stake, LVMH now owns nearly 20 per cent of Gucci.

Prada, advised by J.P. Morgan, the US investment bank, sold its Gucci shares to LVMH for \$70.50 each. It has also secured a commitment from LVMH that it launches a successful tender offer within 12 months. Prada will receive a premium on an offer price of more than \$70.50.

If an offer is made within three months of yesterday's deal, Prada can claim 80 per cent of the difference between \$70.50 and the tender price. The premium reduces to 50 per cent by the final three months. Prada is entitled to a smaller benefit if an LVMH offer is unsuccessful. It cannot claim anything in the event of an unsolicited third party bid.

LVMH, which has also agreed to co-operate with Prada in areas such as marketing and production, is obliged by New York stock market regulations to clarify its long-term intentions towards Gucci by Friday. "Knowing Bernard Arnault, he'll keep everyone in suspense until the last minute," said one analyst.

Gucci's shares slipped by \$2.65 to \$68.9 yesterday, having hit \$61.0 on Friday amid frenzied bid speculation. LVMH's shares, which also made strong gains on bid hopes, were down \$4.60 to \$206.40 in Paris yesterday.

Analysts suspect Mr Arnault may decide to retain a sizeable minority position in Gucci rather than stage a full bid. He might find it hard to persuade Domenico De Sole, Gucci's president, and Tom Ford, chief designer, to stay if LVMH assumes control.



Gucci's new collection was launched in Milan at the weekend

CASH AND EQUITY DEAL MOVES BERMUDA-BASED GROUP CLOSER TO BUILDING UP GLOBAL INSURANCE FRANCHISE

ACE to acquire Cigna business for \$3.4bn

By John Authers in New York

ACE, the Bermuda-based insurance group, yesterday agreed to buy Cigna's global property and casualty insurance business for \$3.45bn in cash, in a deal that dramatically expands its attempt to build a global franchise.

ACE, founded in 1985, has made a series of opportunistic acquisitions in the past three years, including those of three managing agencies at Lloyd's, the London insurance market. But this is by far its biggest

buy, and more than doubles the scale of its property and casualty insurance businesses.

The deal also continues the trend for large diversified US insurers to focus on a narrower range of products. Cigna, which has already withdrawn from reinsurance and individual life insurance, will use the proceeds to build its employee benefits business, which is based around health-care management companies and pension fund managers.

This strategy is similar to that adopted by Aetna, which

has also focused on employee benefits and health insurance, while other companies have shed life insurance businesses to become pure property and casualty insurers.

Brian Duperrault, ACE chief executive, said: "We believe in a diversified company and a diversified earnings stream. I don't see ACE as a consolidator. Our acquisitions have been strategic and purposeful to fill in areas that we thought were necessary."

The deal will be funded by a combination of cash and newly

issued equity, with debt and preferred and convertible securities.

While ACE had net written premiums of \$883m for the year ended September 1998, Cigna had total written premiums in 1997 of \$3.07bn, almost equally divided between US and international business. The new ACE business will derive 50.6 per cent of its revenues from North America, with 19.5 per cent from Europe and 11.3 per cent from Japan.

Eric Simpson, vice-president of property and casualty insur-

ance at AM Best, the rating agency, said the deal was in line with the strategic directions of both companies.

The discussions between ACE and Cigna became public three weeks ago, and neither company's share price moved much on yesterday's news, with Cigna edging up by 8% in early trading at \$83, while ACE gained 4 per cent, up \$14 at \$344. The price, which valued the block of Cigna businesses at 1.4 times their book value, was a little ahead of some estimates.

Arjo Wiggins chief departs in reorganisation

By Virginia Murray

Arjo Wiggins Appleton yesterday parted with its chief executive and announced a shake-up of its businesses in moves seen as a prelude to a possible break-up of the underperforming Anglo-French paper group.

Arjo said it was reorganising itself along product rather than regional lines and that the chief executives of its three new divisions would be given a lot of autonomy. This meant it no longer required a group chief executive.

Ken Minton, who becomes an executive chairman, said Philippe Baylier, 62, chief executive since 1987, had left with immediate effect.

Mr Minton denied there was a need for anyone in the market to make a bid for any of our businesses. He said the reorganised group was capable of improving performance itself. But, he added: "The new structure and our new spirit make taking opportunities easier. This could mean invest-

ing more in some businesses or floating parts of the group or mergers."

He suggested that speciality and fine papers was the business most likely to be retained. The group aimed to build up a global presence for its merchandising arm, which is mainly European-based, and to obtain a better operational performance from its carbonless and thermal paper businesses, before their possible disposal.

The shares - which have

underperformed the UK market by nearly 80 per cent since the group's formation in 1991 - rose 5% to 115p, down from a high of 318p in mid-1994.

Analysts, who believe the group's break up value is well in excess of its market valuation, welcomed the news but were cautious given Arjo's history of repeated management upheavals and restructuring programmes.

There was also some concern at the departure of the

well-regarded Mr Baylier, who leaves with a \$380,000 pay-off. Under Mr Baylier, the group - formed by the merger of Wiggins Teape Appleton, an Anglo-American business, and Arjomari-Prixoux of France - has cut costs by £50m (\$64m) a year as part of a £120m shake-up plan announced in 1996.

ABN Amro left its 1998 forecast unchanged at £206m (\$216m).

Observer, Page 11
Lex, Page 12
Arjo tries original dose, Page 18



BARRY RILEY

Short-lived europhoria

A more cautious mood has followed the first

happy-go-lucky week for the eurozone's stock markets, when the FTSE Euro100 index rose up by 7 per cent. Yesterday the main bourses fell between 1 and 2 per cent.

Yesterday also brought confirmation that Germany last year achieved its biggest annual trade surplus since 1989. Ominously, too, Germany's unemployment rate has begun to rise again. After recent so-called europhoria, is there a threat of a return to the euro-sclerosis Germany especially suffered from before the expensive boost from unification in the early 1990s?

For the time being, though, the European stock markets are dominated by the twin restructuring themes: institutional investors are reworking their portfolios in accordance with Europe-wide benchmarks; and the corporate sector is rationalising across borders, with Fiat and Volvo being the latest to feed the rumour-mill.

Significant sums are being raised by mutual funds in Europe and the US to exploit the fashionable eurozone theme. This is bringing new money into the markets and is further fuelling demand for the large capitalisation leaders. The Eurotop 100 outperformed the Eurotop 300 by nearly 1 per cent last week. The leaders provide the easiest and quickest route to the new benchmarks, especially for

non-European investors unfamiliar with the scene.

But there are some party-poosers around. Economic forecasts are generally being marked sharply lower in the face of Europe's developing export crisis. Not so long ago there was heady talk of 3 per cent growth, after perhaps 2.5 per cent in 1998, but the eurozone's economy seems to be hitting the buffers this quarter. It may accelerate later in the year, helped by interest rates which appear certain to fall significantly below 3 per cent. Or will it?

In its January monthly review, Lombard Street Research castigates eurozone's mix of fiscal and monetary policies as "absurdly deflationary". Growth in 1999 will be no more than 1% per cent and prospects will be crippled, says the London-based economics consultancy, unless the 3 per cent Maastricht budget deficit ceiling, which Germany, France and Italy will anyhow have trouble meeting this year, is suspended.

We can safely bet that the predictable honeymoon period for the euro will be quickly followed by a more turbulent phase as eurozone's centre-left politicians are driven by a renewed rise in unemployment (from a "low" point of 10.5 per cent on average) to seek a confrontation with the bureaucrats of the European Central Bank. Certainly, European governments cannot

willingly accept significant gains by the euro against the dollar.

Against this economic background, double-digit consensus earnings growth expectations for eurozone companies will have to be downgraded. With consumer price inflation below 1 per cent (and manufacturing now being hit by deflation) pricing power is being eliminated. And although the restructuring theme remains potentially powerful, it is unlikely that cost-cutting (that is, job-destroying) mergers will be tolerated by the euro-11 governments, given their unemployment problems, as readily as in the US or the UK, where the jobless rates are less than half as high.

Nevertheless, it would be wrong to be bearish about European equities (barring another international crisis of the kind that crippled the Continent's bourses last summer). Euro interest rates are heading lower to 2% per cent according to Credit Suisse First Boston, and to 2% per cent according to J. P. Morgan and Goldman Sachs. The securities markets will benefit from a looser monetary policy. The only problem, perhaps, is that Europe is short of the kind of technology hot stocks that have given Wall Street bulls something to chase after. The eurozone's bourses can still make progress. But they will be advancing into increasingly dangerous territory.

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Toyota to lose Okuda to business forum

By Alexandra Harney in Tokyo

The Japanese car industry was in turmoil yesterday following the nomination of Hiroshi Okuda, president of Toyota Motor, to head the Nikkeiren, a prominent group of business leaders.

The appointment means Mr Okuda is likely to resign his post at the country's number one carmaker at a time when the Japanese recession and global consolidation have plunged the industry into uncertainty. Although Mr Okuda has accepted the post at the business group, also known as the Japan Federation of Employers' Association, he has not yet named a successor nor indicated his next move within the company.

Toyota said that a decision about the next president would probably be made by June, when the company holds its annual shareholders meeting. Nikkeiren members are expected officially to vote in Mr Okuda as chairman in May.

It is believed that Shochiro Toyota, Toyota's 73-year-old chairman, Fujio Cho, executive vice president in charge of corporate strategy, information systems and equipment, and Iwao Okjima, the executive vice president who oversees accounts and personnel, are among the leading candidates for the job.

The sudden appointment has ignited speculation about a management struggle at Toyota, which has widened the gap with other Japanese companies with record profits in recent years. Toyota has steadily increased overseas sales in each of the three years since Mr Okuda was appointed president and chief executive officer. It now accounts for 45 per cent of car sales in the US.

At the same time, Mr Okuda led the company to make strategic, if controversial, investments in biotechnology and finance, and to take the unusual step of refuting Sakura Bank's request for capital last year.

In the first half of this year, it reported record high operating income of ¥368.8bn (\$2.62bn), a 0.5 per cent improvement on the same period the year before, although the downturn in Asia and Japan drove pre-tax profits down 11.1 per cent to ¥288.6bn.

Analysts said Mr Toyota himself a former chairman of Keidanren, the Japan Federation of Economic Organizations, the other influential business lobby - appeared the most likely candidate to succeed Mr Okuda. He enjoys the critically important base of political and industry contacts and has worked for the carmaker for nearly 50 years, gathering experience in both marketing and manufacturing technology.

But with Jürgen Schrempp and Richard Eaton, the DaimlerChrysler co-chairman, arriving in Tokyo next week, the silence is likely to be broken. For the moment, at least, the companies' strategies seem to have put off the difficult debate about how courtship and marriages will change the shape of the Japanese car industry.

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Sharp seeks to combat yen rise

By Alexandra Harney

Sharp is considering shifting production overseas and procuring more parts from south-east Asia in order to offset the effect of the recent strengthening of the yen against the dollar.

The electronics manufacturer, like other Japanese exporters, is facing the possibility of weaker-than-expected sales volumes as its products become more expensive in overseas markets as a result of the yen's rise.

The company, which relies on exports for nearly 55 per cent of turnover, said that the surge of the yen to ¥108 against the dollar this week had forced it to reevaluate its manufacturing strategy. But Katsuhiko Machida, president, insisted that the impact of the currency movements would not affect earnings enough to necessitate a downward revision.

"We are discussing various measures [to offset the impact of the yen's rise]... and within this debate, we have started to discuss the possibility of moving manufacturing overseas," said Mr Machida.

Sharp was also considering using more parts from Asian countries and raising prices on liquid crystal display (LCD) products to combat the negative effect of the rise in the yen, he said. The company, which specialises in LCD products and household and consumer electronics, manufactures nearly 40 per cent of its products overseas.

Mr Machida also outlined a new management strategy, including shortening production cycles and improving investor relations. The comments came after a devastating first half, when the collapse in Japanese domestic demand and the sharp decline in prices in the international semiconductor market sent parent operating profits plummeting 93.5 per cent, from ¥21.72bn to ¥1.34bn (\$12m). Sales slipped 4.8 per cent to ¥643.3bn. In the full year, the group's operating income will tumble 71.7 per cent to ¥3bn.

Sharp was keen to point out that the company was continuing to invest in research on new technology, particularly in LCD products, in spite of the recent slowdown. Although domestic and overseas sales were expected to contract in every division this year, Mr Machida expected 8.8 per cent growth in global demand for semiconductors and nearly a 20 per cent increase in demand for LCD products.

Shares in Sing Tao Holdings were suspended yesterday pending details of bankruptcy petitions filed last week against Sally Aw, chairman of the Hong Kong investment and publishing company.

Japanese carmakers mum on mergers

Silence raises questions over implications of tie-ups for 'big five', says Alexandra Harney

Merger mania may have hit the global automotive industry but in Japan it has hardly registered as a ripple. While reports emerged nearly every day last week that leading car makers - Nissan, Honda and Mitsubishi - are in alliance negotiations with European and US partners, executives and public relations departments in Tokyo seem to have been struck by a collective case of laryngitis.

The silence underscores the importance of the alliances to the Japanese carmakers amid the industry's deepest slump in decades. The mergers represent perhaps the easiest way to put companies back on the road to recovery by clearing balance sheets of heavy debt and loss-making operations.

As truck sales tumbled to their lowest levels in decades in July 1998, Nissan Diesel, the truck and engine manufacturer, said it had agreed to develop light trucks with Daimler-Benz, the newly merged German-US auto group.

But as reports emerged over the following months that Daimler-Benz aimed to acquire the engine and truck maker, the Japanese company kept to a strict no-comment policy.

Nissan has also been equally laconic about reports of alliance talks with Renault, the French carmaker, DaimlerChrysler and Ford. Mitsubishi Motors, the country's number three car and truck group, has also been evasive. Katsuhiko Kawasoe, Mitsubishi president, told foreign reporters last year that "our basic position is to consider in a positive light any tie-up proposal which brings mutual benefits to the partners in their respective regions and territories".

In fairness, he jokingly said at a recent industry gathering that he had been carrying around a "buying list" of parts of the business he would like to sell.

By contrast, the other merger candidates in the big five have been clear about their intentions. Hiroyuki Yoshino, chief executive officer of Honda Motor, the car and motorcycle group, denied he intended to link up with another group last

December, and the company continued to crush such speculation as rumours circulated about a Honda-Ford tie-up last week.

Toyota has also stated its plans to go it alone for the time being, after increasing its share in Daihatsu, the minicar manufacturer recently.

Ford already owns 33.3 per cent of Mazda Motor, but it has not expressed any intention of raising its stake for now. The company has also denied any plans to buy Honda.

General Motors, which last year increased its equity in Suzuki to 10 per cent, has said it would not be averse to raising that share further.

The silence has fed suspicions about carmakers' financial instability at a time when the country's recession and the collapse of domestic car sales to their lowest levels in more than two decades have sent profits tumbling, and raised questions about the implications of tie-ups for the big five. Concerns are especially acute about Nissan, which said last November it expected ¥30bn in after-tax losses in the year ending this March, the sixth year out of seven it has been in the red.

Following the downgrade of its debt last August by Moody's, the US credit rating agency, to Baa3, just above junk-bond status, the group was forced to reconsider its borrowing practices, according to company executives.

But analysts point out that the silence may prove a successful strategy during a shaky time for the industry. Japan's car companies can ill afford further declines in share prices, and their weak finances give them little leverage with the likes of DaimlerChrysler, Ford, and GM.

"The potential impact [of the mergers] is so big that the companies can't really say anything," says Chikao Masuzawa, industry analyst at ING Barings in Tokyo. Shares in carmakers climbed over the past few days amid hopes that mergers would lead to a recovery in companies' sagging earnings and accelerate restructuring efforts.

Despite the companies' repeated denial of plans for a merger, Nissan advanced ¥8, or 1.3 per cent, to ¥720, to ¥388 yesterday. In its sixth consecutive day of gains.

In contrast, Honda closed unchanged at ¥3,720, and Toyota, which has swung wildly over the past weeks, closed yesterday down ¥15 to ¥2,755.

Shares in Kobe advanced ¥3 to ¥78, and Shinsho fell back ¥1 to close at ¥150.

Kobe Steel restructures semiconductor operations

By Alexandra Harney

Kobe Steel is transferring marketing of semiconductor products to an affiliated group, completing the Japanese steel group's effort to move its chip business off the parent company's books.

The deal is part of Kobe's continuing attempt to restructure its management operations and restore its semiconductor business, which last year recorded sales of ¥8bn (\$78m), to profitability.

Kobe will move the marketing of logic devices and memory chips to Shinsho, a listed trading company made by Kobe and other groups for several years. It will also help Kobe limit its losses from the volatile memory market. The company said it expected sales of

Micron Technology, the US chip manufacturer, as part of a deal agreed last June. The move will be a boost for Shinsho, which has been supplying manufacturers in the US and Japan with chips made by Kobe and other groups for several years. It will also help Kobe limit its losses from the volatile memory market. The company said it expected sales of

Micron chips alone to jump from ¥2bn next year to ¥10bn by 2001. Shinsho said it planned to supply dynamic random access memory integrated circuits and application-specific products to Fujitsu, NEC and Sharp, the Japanese electronics groups.

The collapse in chip prices and the slowdown in steel demand from Japan and Asia as a result of the economic crisis led to ¥8bn in first-half pre-tax losses at Kobe last year and to another ¥3bn in pre-tax losses at the twelve-month stage. This compares with profits of ¥36.2bn the previous year.

Sing Tao Holdings shares suspended

By Louise Lucas in Hong Kong

Shares in Sing Tao Holdings were suspended yesterday pending details of bankruptcy petitions filed last week against Sally Aw, chairman of the Hong Kong investment and publishing company.

The petitions were filed after Miss Aw failed to repay at least HK\$294.2m (US\$38m) claimed in a writ by Ho Ying-chie, chief executive of Hong Kong Tobacco. Sing Tao previously said that the petitions were invalid, but did not elaborate.

Investors in Sing Tao are concerned at the impact a possible bankruptcy would have on the sale of the company, which is under way. Attempts to find a buyer have collapsed, but last month China Enterprise Development Fund (CEDF), a Dublin-listed fund whose investors include Fidelity, Far East Fund and University of Richmond, agreed to pay HK\$115.8m for a 23 per cent stake in the company.

Wessanen

Koninklijke Wessanen nv (formerly Koninklijke BuitWessanen nv)

With reference to the amendment to the Articles of Association which the General Meeting of Shareholders of December 2, 1998 resolved to implement, and which took effect on December 14, 1998, the undersigned hereby announces that the company's name has been changed to Koninklijke Wessanen nv

In connection with the name change, the depositary receipts for shares in Koninklijke BuitWessanen nv, the CF and K certificates (the latter ones accompanied by dividend coupons nos. 17 onwards and the latter ones must be surrendered to NV Nederlandisch Administratie- en Truistantoor, at Herengracht 420, 1217 BZ Amsterdam, the Netherlands, with effect from January 20, 1999 in order for them to be stamped so as to evidence the name change

The AEX-Effectorbous nv (Amsterdam Stock Exchange) have been asked to arrange for the securities to be listed under the new name as from January 20, 1999.

To prevent the holders of depositary receipts from being charged any commission on the stamps, the AEX-Effectorbous nv licensed institutions will be reimbursed the commission fee charged up to February 26, 1999 in accordance with article no. 80-50. The fee comes to NLG 1.25 per security regardless of its denomination, plus applicable charges

Koninklijke Wessanen nv
Stichting Administratiekantoor van aandelen
Koninklijke Wessanen, Amsterdam, January 13, 1999

AETNA MASTER FUND

Société d'investissement à Capital Variable
Registered Office: 21 Avenue de la Liberté, L-1931 Luxembourg
R.C. Luxembourg B 32 197

SECOND CONVENING NOTICE
Following the Extraordinary General Meeting held on 28 December 1998 at which no quorum was achieved, the shareholders of the Aetna Master Fund are hereby convened to attend a second

EXTRAORDINARY GENERAL MEETING
to be held on 23 January 1999 at 11:30 a.m. at the office of Aberdeen Investment Services S.A., 21 Avenue de la Liberté, L-1931 Luxembourg, with the following AGENDA:

1) To approve and ratify the merger proposal published in the Mémorial, Recueil des Sociétés et Associations in Luxembourg and deposited with the Chancery of the District Court in Luxembourg (the "Merger Proposal");

2) To approve:
a) the merger of the AMF with ABERDEEN GLOBAL, formerly known as The Aetna International Umbrella Fund (Aberdeen Global), a Luxembourg Société d'investissement à Capital Variable with its registered office at 21 Avenue de la Liberté, L-1931 Luxembourg by contributing:

AMF Fund
Aberdeen Global European Equity Fund
Aberdeen Global Australian Equity Fund
Aberdeen Global European Equity Fund
Aberdeen Global Dutch Equity Fund
Aberdeen Global French Equity Fund
Aberdeen Global German Equity Fund
Aberdeen Global Asian Equity Fund
Aberdeen Global Italian Equity Fund
Aberdeen Global Japanese Equity Fund
Aberdeen Global European Equity Fund
Aberdeen Global US Dollar Reserve Fund

b) the report of the directors of AMF in relation to the Merger Proposal; and
c) the audit reports prescribed by Article 296 of the Luxembourg law on commercial companies;

3) To take note that as a result of the merger AMF shall be wound up without liquidation, and all its former shares shall be cancelled and that the assets and liabilities of AMF shall be deemed to be transferred to Aberdeen Global on the day of the merger, as determined in the Merger Proposal.

4) To acknowledge the resignation of Ralph Appadoo, Frederick C. Copeland Jr., Patrick Sun Cheong Poon, Patricia L. McEneaney and David W. Evans as directors of AMF with effect from 30th November 1998 and to ratify the co-opting of Martin Gillet, Hugh Young, Ben Handley, Graeme Gilchrist and Peter Hennes as directors of AMF with effect from 30th November 1998.

Decisions on the Agenda require no quorum of the shares in issue to be represented.
Decisions will be validly adopted if voted in favour by a two-thirds majority of the shares present or represented.
The following documents are available for inspection by the Shareholders of AMF and copies thereof may be obtained, free of charge, from 21 Avenue de la Liberté, L-1931 Luxembourg:

(i) the text of the Merger Proposal;
(ii) the prospectus of Aberdeen Global (only available, subsequent to regulatory approval having been received);
(iii) the audited annual Report and Accounts of AMF at 31 March 1998, 1997 and 1996 and its semi-annual accounts at 30 September 1998;
(iv) the audited annual Report and Accounts at 31 December 1998, 1996 and 1997 of Aberdeen Global, its semi-annual accounts at 30 June 1998 and an interim report at 30 September 1998;
(v) the reports of the directors of AMF and of Aberdeen Global; and
(vi) the special reports of PwC Audit.

Forms of proxy may be obtained from and completed proxies should be sent to Aberdeen Investment Services S.A., 21 Avenue de la Liberté, L-1931 Luxembourg, for the attention of Mr Horner. Completed proxies should be received at least five business days prior to the date of the Extraordinary Meeting.

The Board of Directors

We are pleased to announce the election of the following officers

Frank M. Brochin
Roberto Italia
Jonathan Kane
Rosanne Zimmerman
Vice President

Dolores M. Paolicelli-Gad
Assistant Vice President

E.M. WARBURG, PINCUS & CO., LLC

Sean D. Carney
Jonathan S. Leff
David Wenstrup
Ravi P. Yadav
Vice President

WARBURG, PINCUS VENTURES, LLC

Adam Barron
Martin Huth
Vice President

E.M. WARBURG, PINCUS & CO. INTERNATIONAL, LTD.

Rajesh Khanna
Daniel C. Li
Vice President

E.M. WARBURG, PINCUS & CO. ASIA, LTD.

E.M. WARBURG, PINCUS & CO., LLC

NEW YORK LONDON HONG KONG
TOKYO SINGAPORE SAO PAULO

January 1999

Northern Ireland

Thursday April 1

For further information please contact:

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FINANCIAL TIMES

No FT comment

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GOLDMAN SACHS VOLUBLE THORNTON AND QUIET THAIN VIEWED AS IDEAL POST-IPO PAIRING

Opposites attract as bank enters new era

By Tracy Corrigan in New York

The timing of the elevation of John Thornton and John Thain to co-chief operating officers of Goldman Sachs on Monday ahead of the firm's much-heralded initial public offering - may have come as something of a surprise but the pairing of the two bankers to lead the investment bank in a new era as a public company has been carefully prepared.

Two years ago, Mr Thain was sent to London, where Mr Thornton was already based, and the two were named co-chief executive officers of Goldman's European business.

The move, dictated by Jon Corzine - until yesterday co-chairman and chief-executive - was widely seen as a test of the pair's ability to

work together, as Mr Corzine planned for his succession. Though some in the firm predicted fireworks, the soft-spoken Mr Thain and the more outspoken Mr Thornton worked well together.

The 45-year old Mr Thornton has spent much of his career building Goldman's business outside the US. He joined Goldman's mergers and acquisitions department in New York in 1980. In 1992 he started building the investment banking business in Europe and two years ago, he was given the job of rebuilding the Asian business, which had been decimated by the firm's retrenchment in 1994. But he remained based in London and plans to stay there in his new role. His broad experience in building overseas



Faces fit: John Thornton (left) and John Thain seem to gel

businesses for the firm is somewhat unusual.

"He is the first that has made it to the most senior ranks of the firm having

spent most of his career overseas," said Alan Hillier, an executive search consultant at Egon Zehnder. Mr Thornton made his

name in Europe with the 1991 defence of Imperial Chemical Industries against a bid from Hanson but has attracted controversy, most notably over his chairmanship of Laura Ashley, the troubled UK retailer.

Mr Thain joined Goldman Sachs in 1979 in the corporate finance department but moved to mortgage securities which he rose to head in 1987. He became a partner in 1988. He is regarded as a fierce intellect who commands attention in a quiet way.

Ironically, the two men were reluctant to see the firm abandon 130 years of private partnership, a move close to the heart of Mr Corzine.

While Hank Paulson, now chief executive officer, kept his opinion on the move

quiet ahead of the June vote on the issue, both Mr Thain and Mr Thornton expressed some opposition.

Mr Thain, according to people familiar with his views, was reluctant to abandon the principle of partnership. Mr Thornton, on the other hand, was keen that the firm should examine the option of merging with another substantial financial services institution before pursuing the IPO path single-mindedly. The other difference, people say, was that Mr Thornton was considerably more vocal.

Mr Thornton's liking for merger options could now be given a second look but, having bought into the IPO process last summer, the new management is unlikely to have much room for manoeuvre.

Lucent may marry after long engagement

US telecoms group aims to find a suitable partner in Ascend, writes Roger Taylor

Lucent Technologies, the leading US maker of telecommunications network equipment, has taken a long time hammering out its offer for Ascend Communications, the data networking company.

The two have been in talks for months and a deal has always seemed likely. Although both sides deny it, each needs the other.

Telecoms companies, which now manage increasingly large amounts of computer data as well as telephone calls, need machines to handle both. So traditional telecoms equipment makers have had rapidly to buy expertise in data networking.

Last year, Nortel, the Canadian telecoms equipment company, bought Bay Networks. At the time, Lucent was exploring a tie-up with Cisco Systems, the leading data networking company. Since that failed, Lucent has been eyeing the alternatives.

Ascend has been the obvious target because of its focus on the so-called "carrier class" market - big machines used to drive the networks of internet service providers and telephone companies. The only other large independent US data networking firm, 3Com, focuses on equipment for home and business use.

Lucent has been trying to build its own data-networking business in-house with a string of smaller acquisitions. However, it does not have the luxury of time. The big telephone network operators are deciding on their future equipment needs now and Lucent must show it can deliver.

The possibility of a deal last autumn was stymied by the stock-market weakness which saw both companies' shares fall sharply.

Since October, Lucent's shares have soared from about \$80 to over \$100, valuing it at about \$150bn. Ascend has had a rougher

time. Its shares, now trading at about \$75, have still not managed to beat their high of \$77 in January 1997.

If Ascend's directors, who met yesterday, and its shareholders decide to accept Lucent's offer, Lucent's problems will just be starting. The reason for the failure of Cisco's talks with Lucent, and one of the most frequent doubts expressed about Nortel's acquisition of Bay Networks, is the problem of integrating the entrepreneurial west-coast business culture of the data-networking companies into much larger, more bureaucratic telecoms equipment makers.

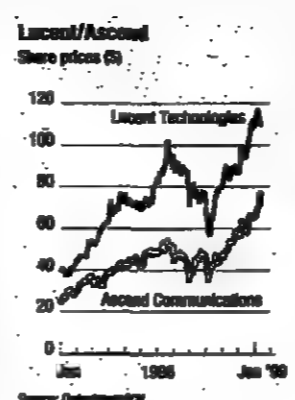
Lucent has no history of successful large acquisitions in its two years as an independent company. Further back, when Lucent was part of AT&T, the picture is no more encouraging. Richard McGinn, Lucent chief executive, was president of AT&T's computer

arm when it launched its disastrous purchase of NCR, the computer company.

The biggest losers from any link-up between Ascend and Lucent are Cisco, Lucent's biggest competitor, and the European telecoms equipment companies which have yet to build credible data networking businesses.

Cisco is unlikely to make a counter-bid for Ascend. It has little to gain in terms of technology and has said its strategy is not to make defensive acquisitions but to buy new technologies. The depressed share price of Alcatel, the French group, leaves it in no position to counter-bid. Siemens of Germany has a link with Newbridge Networks, the Canadian data networking firm, which could lead to a full merger. Ericsson of Sweden is understood to be looking at a number of smaller businesses. And after Ascend and Newbridge, there are no big ones left.

There are many positive



E*Trade to take stake in web bank

By Tracy Corrigan in New York

E*Trade, the internet brokerage, plans to take a 28 per cent stake in a new internet investment bank set up by two well-known west-coast bankers.

E*Offering, which expects to begin underwriting public offerings for sale to E*Trade subscribers, is being set up by Sandy Robertson, founder and former head of Robertson Stephens, the west-coast investment bank now owned by BankBoston, and Walter Crutenden, former chief executive and president of Crutenden Roth, another west-coast investment bank.

Under the terms of the agreement, E*Trade will have an option to increase its ownership to 51 per cent. No financial details were disclosed.

E*Offering plans to conduct IPO roadshows and distribute research and shares over the internet. As much as 50 per cent of each deal will be distributed to online retail investors and E*Trade customers will generally have first access to these shares, the company said.

Like Wit Capital, another internet investment bank, E*Offering plans to undercut traditional investment banks, charging companies "less than the 7 per cent of gross funds typically generated by investment banks for IPOs", it said.

It plans to focus initially on equity underwriting of about \$25m-\$50m and to offer research coverage, trading support and mergers and acquisitions advice to clients, and eventually to add debt underwriting. Mr Robertson founded Robertson Stephens in 1978. He resigned last year and cannot assume an active management role until his current "non-compete" agreement with Robertson Stephens expires in about 12 months.

Tie-ups the way for hard-up biotechs

By Victoria Griffith in Boston

This year will be one of the toughest ever for biotechnology companies as financing becomes extremely tight - a real danger for corporations that sometimes struggle to hand out pay-cheques at the end of the month.

"The capital just isn't there," says Peter Feinstein, chairman of biotech consulting firm Feinstein Kean Partners. "I foresee a heightened failure rate in the industry, as companies get weeded out."

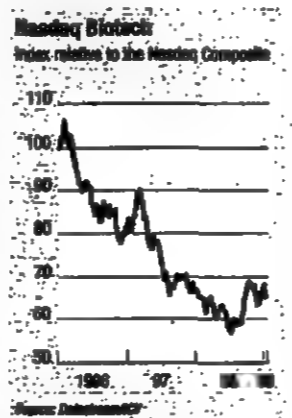
For the biotech sector 1998 was a dismal year. Initial public offerings were scarce, and companies that put deals together saw their prices plummet after coming to market. At the end of April, Nanogen raised \$25m at \$11 a share. In mid-December, its stock price was stuck at just more than \$4, up from a \$3 low. Ribogene came to the market in

May at \$7 per share but had dropped to about \$2.4 seven months later.

Such falls did not ingratiate the industry with investors and in the second half of 1998, the public equity window closed. "Of even more concern than the lack of equity financing was the lack of interest from venture capital funds, flush with cash," which held back on biotechnology, says Anna Kazanchyan, a healthcare analyst at Barington Capital.

Even established biotech companies had a hard time raising money. Just \$450m was raised in secondary offerings during the first nine months of 1998, compared with \$1.5bn in 1997. With analysts predicting this year will be even worse, the sector is bracing for tough times. "Capital has dried up for the foreseeable future," says Ms Kazanchyan.

Such anti-biotech sentiment is a long way from the



industry's heyday in the 1980s. In 1980, an IPO by Genentech sparked a feeding frenzy. Half an hour after the stock was floated at \$85 per share, the price shot up to \$88. Investors may be right to feel let down. As late as the early 1990s, many investors believed new technology - using "designed" molecules

rather than the old trial-and-error methods - would replace traditional pharmaceutical companies. Yet the path to market has proved longer and more arduous than anyone had anticipated.

In reality, the industry has yielded few lucrative products and only about 12 companies can be expected to report a profit this year.

However, disappointment in the sector has not kept enthusiastic scientists from starting new ventures. There are more than 350 biotech companies in the US and pruning may be overdue. However, for those that survive, financing will continue to be a problem.

Some will die a slow death. A few may be snapped up by larger groups in the sector, profit-makers like Biogen, Genzyme and Chiron.

Those that survive will probably look to the pharma-

ceutical industry for funding. It has become increasingly interested in joint ventures with biotech to gain access to new technology at relatively low cost.

"We haven't been interested in acquisitions because we can pick the best projects to partner with, regardless of who runs them," says Barry Hepp, vice president of technology at pharmaceuticals company Pfizer.

In return for funding, biotech companies are often forced to give up large shares of future profits or they may be dropped from a programme at the drop of a hat, often not because the research is not going well but because the pharmaceutical group has decided to concentrate on other disease areas.

As the biotech industry grows increasingly desperate for capital, pharmaceuticals companies will be calling most of the shots.



ANGLOGOLD LIMITED
(Incorporated in the Republic of South Africa)
(Registration number 05/17354/06)
("AngloGold")

THE ACQUISITION BY ANGLOGOLD OF THE GOLD INTERESTS OF MINORCO

Further to the announcement of 24 December 1998, members of AngloGold are advised that the circular giving details of the acquisition, including an independent technical adviser's report and containing a notice of a general meeting of AngloGold members, has been posted to members today. The general meeting will be held on 5 February 1999 for the purpose of considering and, if deemed fit, approving the acquisition.

Members are also advised that the financial effect of the acquisition on the net asset value per ordinary share of AngloGold has been re-evaluated and adjusted by the implementation of the special resolution, relating to the reduction of share premium, as set out in the circular to members of AngloGold dated 6 May 1998, which was subsequently approved and sanctioned. The acquisition has no effect on the revised net asset value per share of R67.45 (US\$13.87).

Johannesburg
12 January 1999

Circular available on Internet address: <http://www.anglogold.com>

FIDELITY FUNDS

Société d'Investissement à Capital Variable
Kamille House - Place de l'Étoile
B.P. 2174, L-1021 Luxembourg
R.C. Luxembourg B 34036

NOTICE TO BEARER SHAREHOLDERS IN THE

- FIDELITY PORTFOLIO SELECTOR GROWTH FUND
- FIDELITY PORTFOLIO SELECTOR MODERATE GROWTH FUND
- EURO CASH FUND

Shareholders are hereby informed that as of January 4, 1999 the following funds have changed their names:

1. Fidelity Funds - Fidelity Portfolio Selector DM Growth Fund has been renamed to Fidelity Funds - Fidelity Portfolio Selector Growth Fund.
2. Fidelity Funds - Fidelity Portfolio Selector DM Moderate Growth Fund has been renamed to Fidelity Funds - Fidelity Portfolio Selector Moderate Growth Fund.
3. Fidelity Funds - CapitalBuilder DM Cash Fund has been renamed to Fidelity Funds - Euro Cash Fund.

Fidelity is recalling all existing bearer share certificates for re-issuing in order to reflect the name change and to ensure good delivery for transactions over the Luxembourg Stock Exchange.

On behalf of the Board of Directors



BASF Aktiengesellschaft D-67058 Ludwigshafen

Allianz Aktiengesellschaft, Berlin and Munich, has informed us pursuant to § 21, Section 1, § 22, Section 1, No. 2, and § 24 of the German Securities Trading Act for BASF Beteiligungsgesellschaft mbH & Co. KG that its share of the voting rights has exceeded the thresholds of 5% and 10% and is 10.44%. All the voting rights are to be attributed to BASF Beteiligungsgesellschaft mbH & Co. KG pursuant to § 22, Section 1, No. 2, of the German Securities Trading Act.

Ludwigshafen, January 5, 1999

BASF Aktiengesellschaft
The Board of Executive Directors

BASF

NEWS DIGEST

INSURANCE AND PENSIONS

Aegon to sell Worldwide Insurance for \$162m

Aegon, the international life assurance and pensions group, is to sell Missouri-based Worldwide Insurance Company and its property and casualty subsidiaries to American Financial Group for \$162m, including about \$47m in pre-closing dividends.

Cendant, the US direct marketing and franchising group, had provisionally agreed just over a year ago to buy Worldwide for \$219m, but pulled out of the deal in October. Aegon acquired Worldwide as part of its \$3.6bn purchase of Provident, the Kentucky-based insurer, in 1997.

Bart Herbert, executive vice-president and chief marketing officer of Aegon USA, said it wanted to concentrate resources on growth in the life and health insurance, and retirement and savings product sectors.

Andrew Bolger, Insurance Correspondent

PAPER

Asia effect hits manufacturer

International Paper, the largest US paper manufacturer, yesterday announced profits and sales for 1998 slightly below 1997 levels, mainly due to the continued impact of the Asian economic downturn. Earnings for the year, before special items, slipped from \$310m to \$308m, on sales which dropped from \$20.1bn to \$19.5bn. Once special items were included, it made a profit of \$213m, following a loss of \$151m in 1997.

The company said that it had seen "signs of improvement in supply-demand relationships", and announced price increases in linerboard and printing papers. This helped its shares gain \$2 to \$46½ in early trading. John Authers, New York

CATALOGUE RETAILING

Lands End to cut jobs

Lands End, the Wisconsin-based catalogue retailer of upmarket casual clothing, is to cut about 11 per cent of its salaried staff positions and close three of its 19 stores. The company also said it would close down its Willis & Geiger division, having failed to find a buyer for the unit. The restructuring plan, which will result in the loss of 84 of its 888 salaried jobs, follows a difficult period for the company, which a few years ago was ambitiously seeking to push into overseas markets. The company has seen numerous management changes over the past months, and in the most recent quarter, to end-October, the company barely broke even. Nikki Tait, Chicago



If your non-life depends on it

Let our unparalleled global network of correspondents and industry contacts provide you with up-to-the-minute news and analysis of:

- Latest developments in individual markets
- Legal and regulatory changes
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- Companies' activities and financial status

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By: The First National Bank of Boston

London, April 1999

January 13, 1999

CHARGE

COMPANIES & FINANCE: INTERNATIONAL

FORECAST PREDICTED LOSSES SIGNAL COUNTRY'S WORSENING BUSINESS CONDITIONS

China profit warnings continue

By James Harding in Shanghai

Seven companies listed on China's domestic stock markets said yesterday they would report losses for 1998, bringing the number of profit warnings in the past week to 17 and underlining the strains on corporate China.

The announcements suggest that listed Chinese companies would report their worst annual results in the nine-year history of the mainland stock markets, sapping the confidence of domestic equity investors and signalling the worsening business conditions in China.

Most of the loss-making companies blamed fierce competition in export markets, particularly in Asia, and the weakness of domestic consumption.

Many of the world's leading multinationals operating in China have downgraded their expectations for 1999 following worse-than-expected results last year.

Only one company yesterday - Shenzhen Huaia Electronics - has issued so-called B-shares to foreign investors. The other six companies were all listed on China's domestic currency stock exchanges, known as A-share markets.

One company, Sichuan Chengdu Hongguang Indus-

trial, a television components maker, has already achieved notoriety for disappointing investors. It emerged last year that the company had supplied false financial information in order to secure a listing on the Shanghai stock exchange. Hongguang had claimed a profit for 1998 of RMB54m (\$6.5m), even though it made a loss of RMB103m. It continued reporting profits while losing money after the listing.

Analysts yesterday suggested the warnings were a sign of greater transparency among Chinese companies, which have shown scant regard for their obli-

tions to inform investors.

The China Securities Regulatory Commission, the markets watchdog, has issued regulations requiring companies expecting a loss to announce the information before the earnings are disclosed. Most listed companies are expected to announce their audited results for 1998 in April.

But greater transparency is only partly responsible for expectations that more companies than ever will report full-year losses. The collapse of export markets - sales of Chinese goods to Asian countries fell nearly 10 per cent last year - have undermined many listed companies.

Brazilian shares hit by threat to IMF package

By John Barham in São Paulo

Share prices in São Paulo crashed yesterday amid fears that a 90-day debt moratorium declared last week by the state of Minas Gerais could threaten approval in Congress of the government's economic stabilisation package. Concern over Brazil also contributed to the slide on Wall Street.

São Paulo's Ibovespa index, which was down 8.9 per cent in afternoon trading yesterday, has fallen 14 per cent since Itamar Franco, the new governor of Minas Gerais, first made his threat to suspend service payments on R\$18.6bn (\$15.3bn) in debt owed to the federal government. The value of Brazilian bonds on international markets has dropped by 7.8 per cent, and local interest rates have risen by about 400 basis points since last week.

Markets fear a \$41.5bn rescue package agreed with the International Monetary Fund in December might unravel, forcing a damaging currency devaluation. The downward lurch in financial markets has landed another blow on Brazilian companies, already struggling with a severe recession.

Ednardo Tieppo, director at the São Paulo office of Britain's HSBC bank, said Mr Franco "is having an enormous impact. [Previously] there was talk of companies doing short-term operations, but every event that casts doubt on the government's ability to deliver [economic reforms] cools the market."

Brazilian private-sector borrowers have an estimated \$4.4bn in foreign debt and interest payments maturing in the first quarter, and \$5.02bn in the second. In total, companies and banks must pay \$13.81bn in principal and interest this year.

Francisco Gros, head of Morgan Stanley Dean Wit-



Itamar Franco: governor declared debt moratorium

ter's São Paulo office, said: "We have private companies that would like to access the market." However, none wants to pay spreads of at least 750 basis points over equivalent US treasury bonds.

Belmiro Ribeiro da Silva, an executive at Klabin, a big paper and pulp company, said: "Klabin is interested [in borrowing] but this [moratorium] has upset the market. There were few windows of opportunity before because markets are waiting for Congress to vote on the [IMF] stabilisation package. [Franco] has just worsened things."

Limited access to international capital markets for banks means they too will have to cut lending to companies, since banks finance most long-term loans with foreign debt.

Fernando Sotolongo, head of wholesale banking at Unibanco, Brazil's third largest bank, says companies are borrowing locally to compensate for the closure of international markets. Although local interest rates are much higher than overseas, companies are unwilling to refinance hard-currency debt overseas at higher interest rates, fearing this will make it harder to borrow more cheaply later, once sentiment improves.

Bankers are not too concerned about the immediate outlook for corporate Brazil, worrying more about the impact of a prolonged recession caused by the government's inability to push spending cuts and taxes increases through Congress and meet its IMF targets.

See leader page

Decision on Adig likely this month

By Tony Barber in Frankfurt

The future of Adig, one of Germany's largest fund management groups, may finally be decided before the end of this month if the two banks that own it continue to make progress in negotiations, the banks said yesterday.

HypoVereinsbank of Munich and Commerzbank of Frankfurt have spent years discussing what to do with Adig, a group which manages about DM60bn (\$36.6bn, \$35.4bn) in assets and in which both banks have a 42.7 per cent stake.

Senior executives representing the two banks are expected to hold meetings before the end of January to resolve the issue.

The central question is whether to split up the fund management group or to agree that one bank should acquire Adig, short for Allgemeine Deutsche Investment-Gesellschaft, in its entirety.

But another long-standing problem is that it has proved difficult for the two banks to agree on a value.

Albrecht Schmidt, chief executive of HypoVereinsbank, indicated last year that he would be keen to take full control of the fund management group. "I think Adig is a very attractive institution. It has a great trade name, and in the past few years it has had a very good performance," he said.

Analysts say the division of responsibilities between HypoVereinsbank and Commerzbank, respectively Germany's second and fourth largest banks, has impaired Adig's efficiency and allowed its competitors, such as Deutsche Bank's DWS group, to take a lead in fund management in Germany.

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Ansett NZ records losses

By Terry Hall in Wellington

Ansett New Zealand, the domestic airline and a wholly owned subsidiary of Rupert Murdoch's News Corporation, recorded a sharp profit reverse in the last year, fuelling speculation that it will soon be sold.

However, last year Qantas, the most obvious buyer, said it was no longer interested, apparently after News Corporation put too high a price on the airline. Both Qantas and British Airways already use Ansett New Zealand for internal travel, in preference to the other domestic airline operator Air New Zealand.

Ansett last year made a NZ\$2.9m (\$1.57m) loss, compared with a net profit of NZ\$4.1m in the previous year. The setback followed losses of nearly \$20m over the past 12 years.

News Corporation bought control of the company after the New Zealand Commerce Commission refused to allow it to be included in the deal when Air New Zealand bought a 50 per cent stake in all other Ansett operations in 1995.

Ansett New Zealand recorded a 4.1 per cent drop in revenues to NZ\$361m in the year to June 30. It blamed the fall on a drop in inbound tourism, mainly from Asia, and competition.

Air New Zealand, its main competitor, said it had made a "sound" profit in flying internal routes in the same 12-month period.

Italy to sell remaining Telecom Italia stake

By Paul Botte in Milan

The Italian government yesterday said it would sell its remaining 4.5 per cent stake in Telecom Italia by the end of April and expected to raise L5,000bn-16,000bn (€3.68bn-€3.10bn, \$2.98bn-€3.60bn) for the Treasury.

Salvatore Cardinale, the communications minister, yesterday said the government had no interest in keeping its stake, the largest single shareholding in the telecommunications group privatised last year.

Although the government still owned 4.5 per cent, Mr Cardinale said this carried less weight than the smaller stakes of the privatised group's private shareholders. This was a clear reference to the Agnelli group whose IFIL industrial holding acquired 0.6 per cent at the time of privatisation and is widely regarded as one of the company's most influential shareholders.

The government was left with a larger than expected stake after the failure of Telecom Italia's former management to finalise strategic partnership deals with AT&T and Unisource. The US telecommunications group and the European telecommunications consortium were due to acquire a 1.2 per cent stake each in Telecom Italia.

Franco Bernabe, appointed Telecom Italia's chief executive last month, has yet to unveil the group's international telecommunications



Sale plan: telecommunications minister Salvatore Cardinale

alliance strategy. However, Mr Bernabe wasted little time in reducing the group's exposure in the high risk digital television business by negotiating a preliminary agreement with Rupert Murdoch to sell the Australian media tycoon up to 80 per cent of Telecom Italia's Stream multi-media subsidiary.

Apart from the stake to be disposed of by the government, no shareholder owns more than 2.39 per cent of the telecommunications group. The 2.39 per cent stake is held by the Bank of Italy. Other shareholders include Nomura International with 1.84 per cent, Nomura Options International with 1.01 per cent, Bear Stearns International

with 0.79 per cent, IMI with 0.75 per cent, Credit Suisse with 0.66 per cent and Credito Italiano with 0.7 per cent.

The telecommunications group has been at the centre of takeover speculation in recent days but talk that France Telecom, Deutsche Telekom and yesterday Olivetti were studying a possible deal with Telecom Italia have been flatly dismissed.

Olivetti and a group of its core shareholders led by Roberto Colaninno, Olivetti's chief executive, yesterday denied an Italian newspaper report they were considering bidding for a 29 per cent stake in Telecom Italia. Mannesmann, Olivetti's German partner, also issued a denial.

COMPANIES & FINANCE: UK

Pub and drinks shares catch a cold

By David Blackwell

Shares in pub and drinks companies caught a cold yesterday after one of the smaller listed pub operators blamed the flu epidemic for a fall in Christmas sales.

The announcement coincided with a warning from Allied Domecq, the spirits and pubs group, that the falling consumer confidence which appeared in summer had intensified, particularly over Christmas.

The Old English Pub Company, which has fewer than 200 pubs, said like-for-like sales in December fell by 2.9 per cent. Barry Warwick, chief executive, said 314 customers cancelled bookings 48 hours or less before Christmas Day. While sickness usually led to cancellations in the winter, this year had been worse than expected.

Shares in Allied fell from 81½p to 51½p, while Old English shares tumbled 49p to close at 262½p. Bass and

Scottish & Newcastle fell 74½p and 25½p to close at 805p and 713p while Whitbread, which will put out a trading statement today, shed 10½p to 767½p.

Analysts cut forecasts for Allied from £285m to about £260m (\$1bn) after estimating that like-for-like sales in its more than 2,000 managed pubs were down by up to 3 per cent. The group's managed pubs were doing very badly, said one, suggesting that smaller pub companies

were more nimble and better able to cope with pressures being felt across the sector.

Allied gave no figures, but admitted that pub results had been affected by "the deteriorating economic trends first evident in the summer months". Sales were lower over Christmas, and interim pub profits would be lower than in the previous first half. Analysts were dismissive of the flu argument put forward by Old English. "Flu looks set to become the

winter equivalent of the poor summer weather and the World Cup," said one.

Stuart Price, drinks analyst with CSFB, said that flu might be a contributing element at Old English, given the sort of customers it attracted. But there was an underlying malaise in the market for pubs and beer. This was reflected in figures from Customs and Excise which showed that in October beer volumes released into the UK market from

wholesalers and brewers was down 5.7 per cent and production down 5.4 per cent on a rolling quarterly basis.

Some companies had already reported positive like-for-like figures - but as JD Wetherspoon - but these had been achieved through price discounting and some sacrifices on margins. "The immediate outlook remains bleak and it will take further restructuring to sort out the sector," said Mr Price.

COMMENT

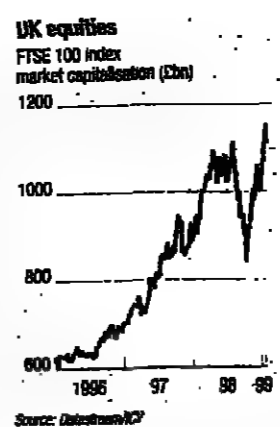
Index trackers

Every time UK equities surge towards new highs, index tracking funds are accused of reinforcing the bubble. They buy and hold, no matter how outlandish the share price. Worse still, they fund their purchases of the big stocks by selling smaller companies, perpetuating the latter's underperformance and restricting their access to funds. With 20 per cent of UK pension funds now with trackers, and perhaps another 50 per cent that are closet trackers, it is easy to suggest that tracking amplifies a loss of contact with fundamentals.

Is this a problem? It has yet to manifest itself in a sustained stock market collapse. And herd behaviour long predates index tracking. If funds are being switched from active to passive management, that is the clients' decision, based on past performance and cost. The flaw is that history may not be the best guide to the future. The active managers can still use their discretion, even if many choose not to. Stung into limiting their bets against a market that has yet to be proved inefficient, they have to take the consequences of piling on the demand for sectors such as telecommunications and drugs. So far they have only benefited. For the future, active managers remain better placed both to take profits and to exploit buying opportunities, including those created by the trackers' forced switches.

But what about the starving of smaller companies? This is graphically illustrated by the billions the trackers are having to find for new share listings by big companies. BP Amoco has seen its market value jump by over £30bn since its merger. AstraZeneca and Vodafone AirTouch could take the total to around £90bn. This increases the market value of the FTSE 100 index by about 8 per cent, diminishing smaller companies' share of the market. Non-FTSE 100 stocks already account for less than a fifth of it.

In terms of price, the big merged companies may be squeezed higher as demand from domestic index trackers competes with international interest in these stocks. This leaves smaller companies feeling neglected. They may instead attract the attention of industry rivals or venture capitalists. The fact that bids from these quarters generally offer big premiums suggests the previous price was inefficient. But if price distortions are becoming clearer at both ends of the spectrum, active investors will surely re-emerge to take advantage.



Source: Datastream/FT

Arjo Wiggins tries a dose of origami tactics

The paper group has been left behind in a consolidating industry, writes Virginia Marsh

Arjo Wiggins Appleton has undoubtedly been held back by its failure properly to stitch together the US, UK and French businesses from which it was formed eight years ago.

But the underperformance is also the result of some poor investment decisions, multiple management upheavals, its inability to grow in some of its markets and the fact that its largest shareholder has historically taken a passive role.

The group has never exceeded the profit levels made by its different members before they came together, while its share price has underperformed the European paper and packaging sector by about 50 per cent since its formation.

Yesterday's announcement of a reorganisation along product rather than geographical lines is partly an attempt to right a historical

weakness under which synergies between businesses operating in different parts of the world have been underexploited. "Parts of the business are still being run virtually as there were in 1990 - separately," said Ken Minton, chairman, yesterday.

It was in 1990 that BAT rolled its two paper businesses together - Wiggins Teape of the UK and Appleton of the US - and spun them off. The following year, the French element was added when the group merged with Arjomari-Prioux. That resulted in Worms & Cie, the French industrial holding group, taking a 40 per cent stake.

Belatedly integrating the mature US and European carbonless and thermal businesses - the former makes copying paper, the latter paper - should bring operational benefits.

In this segment the group is far stronger in the US than in Europe. With coated paper it is the other way round - Mr Minton says the loss-making start-up operations in the US can benefit from input on technology from the established and profitable European businesses.

But the group is also having to recognise that it skewed its investment too heavily towards carbonless and thermal - markets where it has leading positions but which are in terminal decline - and in coated paper, which it decided to expand to the US in the mid-1990s, a move that has proved costly and a drain on top management's time.

This was done at the expense of investment in fine and specialty papers. This is a far less cyclical, higher value-added business with better growth opportunities.

Confidence in the group has also been undermined by a series of top management changes - the well-regarded Philippe Beylier, who resigned as chief executive yesterday, had been in the job for less than two years. With successive chief executives have come repeated, and expensive, attempts at restructuring. Yesterday's announcement comes just as the group is ending a £120m three-year restructuring that has cut the 1995 cost-base by £50m a year.

But wholesale change has not come earlier, perhaps, because so much of the group has been controlled by Worms.

"Given the appalling performance of the shares, other shareholders may well have pushed for action earlier," an analyst said.

Mr Minton denies that yesterday's announcement is a result of greater pressure to

perform following a change of ownership at Worms, which in the past year has fallen under the control of ILL, the holding company for the industrial investments of Italy's Agnelli family, the controlling shareholders of Fiat.

But it is clear that ILL will be playing a greater role following the appointment of Luca Paveri-Fontana, its representative on Arjo Wiggins Appleton's board, as executive vice-chairman.

Mr Minton hopes the new structure will enable the group to participate in the consolidation that has been sweeping the paper industry.

Arjo's future shape is unclear but one of the more likely scenarios appears to be that it will sell or demerge its merchandising business and also either dispose of carbonless and thermal or join forces in this area with another producer



Philippe Beylier: in the job for less than two years

through a merger or joint venture.

Failure to take part in consolidation has been one of the group's main problems, reflected in its tumbling share price. It is strong in niche markets, but as competitors have merged, it has been left behind.

Buoyant Christmas at Kingfisher

By Peggy Hollinger

Kingfisher, the retail conglomerate, yesterday confirmed it had enjoyed a buoyant Christmas, in stark contrast to the rest of UK retailing, with news of a 3.3 per cent increase in comparable sales over the holiday period.

On the day the British Retail Consortium called for an "immediate and significant" interest rate cut to reverse the industry's falling three-month sales trend, Kingfisher reported itself to be pleased with trading for the nine weeks to January 2. Sir Geoff Mulcahy, chief executive, said that although customers had been "careful with their money in the

run-up to Christmas, overall we are pleased with the group's performance, which leaves us well placed to meet our targets for the year."

Although at 3 per cent, Kingfisher's sales appear to have slowed substantially from the increase of 5 per cent announced for the 13 weeks to the end of October, analysts said this had been expected.

The group had turned in a very strong sales performance in the same period last year - particularly at its do-it-yourself chain B&Q - said one analyst, which made further big increases this year more difficult to achieve.

"It was a very solid statement," she said. "Sure, there

has been a slowdown, but it is not that bad in the context of the sector." Profit forecasts were held at roughly £565m-£585m (£663m) for this year.

Kingfisher's trading statement appeared to confirm that consumers had been reluctant to splash out on expensive items before Christmas.

"We have seen a continuation of the trend for people to leave Christmas shopping later and defer big ticket spending," the group said. So the conglomerate's star performance before Christmas came from the low ticket mass merchandise chains, Superdrug and Woolworths. Like-for-

like sales increased by 5.3 per cent, while Superdrug also saw comparable increases of more than 5 per cent.

B&Q returned a like-for-like sales rise of 0.6 per cent, with total sales up by 3.1 per cent.

Darty, the French electricals chain, increased comparable sales by 2 per cent, local currency terms, and 5 per cent in total. Comet, the UK electricals retailer, reported like-for-like sales down 0.8 per cent, and total sales up by 5.8 per cent.

The shares fell 25p to 624½p, although analysts suggested this was due to profit taking rather than any disappointment with the sales performance.

Imetal 'could raise offer by 25%'

By Charles Franks

Imetal, the French metals, building materials and industrial minerals group, could raise its £680m (\$1.14bn) hostile offer for UK rival English China Clays by up to 25 per cent, analysts said yesterday.

Oliver Leflon, an analyst at Warburg Dillon Read in Paris, said he believed Imetal could raise its offer from 225p in cash to 280p. This would value ECC at £847m. He said such a move would lift Imetal's gearing from a current 20 per cent to 156 per cent.

"They certainly can increase the offer," Mr Leflon said. "After the acquisition they will generate substantial cash flow and the speciality chemicals business is a good candidate for disposal."

Analysts believe the speciality chemicals division could be worth up to £180m. The business, Calgon, specialises in water treatment. However, analysts doubted whether Imetal would feel much pressure to increase its offer as high as 280p. Ken Rumpf at Merrill Lynch in London said: "There is a lack of other likely bidders."

Nobody else looks big enough or interested enough to have a go."

In November last year, Schroder Investment Management, one of ECC's largest shareholders, sold more than 3m of its 43m ECC shares. At the time, ECC shares traded at about 165p. Last month it sold another 3.5m at about 175p.

Valerie Mahieddine at Merrill Lynch in Paris, said Imetal had the capacity to raise its bid to yesterday's market price of 240p, which she said would give it gearing of 130 per cent. She said: "That would not

be unbearable. It would stretch the balance sheet and the synergies would have to be very high, but they can do that."

The estimates follow presentations in Paris yesterday by Patrick Kron, Imetal's chief executive. Imetal shares rose 12 per cent yesterday, to 639.8.

ECC shares, which rose more than 50 per cent when Imetal's bid was announced on Monday, fell 24p to 240p. Imetal is controlled by a joint venture company owned by Canada's Desmarais family and Belgium's Baron Albert Frère.

Bespak warns on second half

By Charles Franks

Bespak, the maker of asthma inhalers and other drug-delivery devices and valves, warned that the outlook for the second half was weaker than had been expected.

The shares tumbled 73½p to 912½p yesterday after analysts cut their profit forecasts for this year by up to 8 per cent.

Matthew Lopez, at Dresner Kleinwort Benson, cut his pre-tax forecast by £1.3m to £14m (£23.5m), against £13.8m, and Lis Crouchman, at CSFB, cut her prediction by a similar amount.

Bespak said in Europe it now expected a more rapid decline in volume of sales from valves which use chlorofluorocarbons as propellants for asthma inhalers to valves using more environmentally-friendly propellants.

Peter Chambré, chief executive, said: "We were expecting a 10 per cent cut in valve sales, but now we're expecting a 20 per cent drop through the year in total." This was because customers were bringing forward their transition from CFCs to the



Peter Chambré: expects a 20 per cent drop in valve sales by a similar amount.

new hydrofluoralkane propellant. However, he added that the problem was "short-term".

The group also reported difficulties with Tenax, a contract manufacturer which makes components for medical devices but which has been hit by consolidation among its customers.

Overall, Bespak's pre-tax profit rose 7 per cent to £7m despite a 1 per cent decline in turnover to £41.9m after strong growth from dry-powder inhalers.

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CURRENCIES & MONEY

Japanese make timely intervention

MARKETS REPORT

By Alan Beattie

An intervention by the Bank of Japan which may prove to have lasting repercussions pushed the yen down sharply against the dollar yesterday.

It was the first time that the Japanese authorities are known to have intervened in the foreign exchange markets to support the dollar since 1995.

Although there was no formal confirmation of the action from the Bank of Japan or the Ministry of Finance, market counterparty privately confirmed that there had been substantial purchases of dollars.

The first bout of dollar buying was believed to be early in the Asian session, and knocked the yen sharply lower from around ¥108 to ¥111. The second came at the end of Asian trading, and dealt another firm blow

to the yen, pushing it down to ¥112.5.

The currency then stayed around this level for the remainder of London trading, closing at ¥111.8.

Traders estimated that the Bank of Japan bought a total of between \$1.5bn and \$2.5bn, a relatively small intervention compared with the large sums spent last spring to support the yen.

"The intervention was effective for two reasons," said Robert Lynch, currency strategist at Paribas in New York. "First, the markets were caught somewhat by surprise. Many traders had not expected the Bank of Japan to act until the ¥105 level was breached."

"Second, the market was expecting a further weaken-

ing in the dollar," he added. Mr Lynch said that the risk-reversals for dollar/yen showed that the market was heavily on the side of the dollar's slide continuing.

The thin market was also cited as a reason for the conspicuous success of a relatively small intervention.

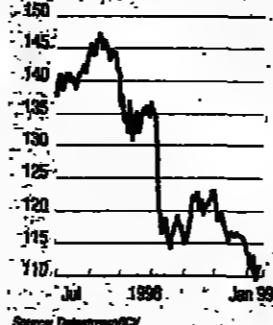
Analysts said that the key behind the move was the desire to stop the yen's climb accelerating towards ¥100.

"Movements in the yen often gain a momentum of their own," said Tony Norfield, currency strategist at ABN-Amro in London.

"Once the yen starts appreciating, capital outflows slow further as Japanese investors start worrying that their external assets will be worth less in yen terms. At a time when the country needs to recycle a huge current account deficit each month, this creates further yen strength and so a vicious circle is set up," he said.

Dollar

Against the yen (¥ per \$)



Source: International Finance Corporation

Many exporters and life assurance firms with assets abroad are believed to be lying in wait to sell dollars around the ¥115 level, which may prevent a rapid movement the other way.

But in the longer term, unless Japanese investors regain their risk appetite, there appears no particular reason that the yen cannot revisit the highs above ¥110.

The decision to intervene has revealed apparent confusion between key ministers in the Japanese government. Kikuo Sakakibara, the vice minister for international affairs at the ministry of finance known as "Mr Yen" for his influence over the

foreign exchange market in Japan, unexpectedly expressed satisfaction at the level of the yen last week, contributing to its rise.

But following Monday's comments by his ministerial colleague Koji Tanami that the strength of the yen was undesirable, this view has been disowned. Mr Sakakibara appeared to perform an about-turn yesterday, saying that excessive yen strength was as bad as excessive yen weakness.

Ministers stopped short of an official admission of intervention. The closest it was the cryptic comments of Kikuo Tanami, the finance minister.

Although he declined to comment directly on intervention, his reported remarks were that he left it to government experts to deliver stability in the yen. Recent movements in the currency had been "a bit rapid", he added.

OTHER CURRENCIES

Jan 12
 Swiss Franc 1.4824
 Deutsche Mark 1.6363
 Italian Lira 1.936
 Spanish Peseta 166.64
 Portuguese Escudo 200.48
 Greek Drachma 340.75
 Turkish Lira 1.8044
 Thai Baht 54.83
 Singapore Dollar 1.3663
 Hong Kong Dollar 7.7556
 New Zealand Dollar 0.6904
 Australian Dollar 0.6904
 Canadian Dollar 0.6904
 Mexican Peso 16.67
 Chilean Peso 800.48
 Argentine Peso 166.64
 Colombian Peso 200.48
 Venezuelan Bolivar 200.48
 Ecuadorian Guano 200.48
 Peruvian Sol 3.08
 Bolivian Boliviano 6.90
 Paraguayan Guaraní 200.48
 Uruguayan Peso 200.48
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Offshore Funds and Insurances

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INVESTMENT TRUSTS - Continued

	Notes	Price	
Wabash Enterprises	3	314 1/8	+
Washington State Corp	3	120 1/8	+
New Zealand	3	124 1/8	-3
Northwestern	3	27 1/8	+
Norfolk Atlantic State Corp	3	37 1/8	+5
Omaha Inc. 2019	3	48 1/8	+
Northwestern	3	87 1/8	-1
Omaha State	3	13 1/8	+
Western	3	44	+
Pacific Assets	3	2 1/8	+
Sears & Warrants	3	23 1/8	+
Pacific Horizon	3	26 1/8	+
Warrants	3	26 1/8	+
Pacific Intl.	3	26 1/8	+

Perpetual European	152 1/2		
Reinvested for 6 Cash	128 1/4	-1 1/2	

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Shirley S. Spector Co's. 41-17 37th St. Bklyn. 11

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Approved for the Inland Revenue

[illegible]

2000 Div Pyl _____ 2000
Under _____ E10121 _____ E1002

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Junior Geared 1996 +	821	173

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FINANCIAL TIMES

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مَكْرًا مِنَ الْإِصْحٰقِ

Highs & Lows shown on a 52 week basis

WORLD STOCK MARKETS

EUROPE (EMU) Prices in €

AUSTRIA (Jan 12/13) € 13.76000 Pt

BELGIUM (Jan 12/13) € 40.25000 Pt

GERMANY (Jan 12/13) € 1.95000 Dm

FRANCE (Jan 12/13) € 1.95000 Ffr

NETHERLANDS (Jan 12/13) € 2.20000 Fl

PORTUGAL (Jan 12/13) € 200.40000 Esc

SPAIN (Jan 12/13) € 166.67000 Ptas

ITALY (Jan 12/13) € 1200.00000 Lit

Greece (Jan 12/13) € 340.75000 Dr

Ireland (Jan 12/13) € 0.78750 Pnt

Finland (Jan 12/13) € 5.94000 Mk

Denmark (Jan 12/13) € 1.95000 Dkr

Sweden (Jan 12/13) € 1.95000 Skr

Norway (Jan 12/13) € 1.95000 Nkr

Poland (Jan 12/13) € 2.20000 Zlot

Czech Rep (Jan 12/13) € 2.20000 Kor

Slovak Rep (Jan 12/13) € 2.20000 Kor

Hungary (Jan 12/13) € 2.20000 For

Slovenia (Jan 12/13) € 2.20000 Tolar

Croatia (Jan 12/13) € 2.20000 Kuna

Bosnia (Jan 12/13) € 2.20000 Mkn

Serbia (Jan 12/13) € 2.20000 Dinar

Montenegro (Jan 12/13) € 2.20000 Dinar

Albania (Jan 12/13) € 2.20000 Lek

Moldova (Jan 12/13) € 2.20000 Leu

Ukraine (Jan 12/13) € 2.20000 Hryvnia

Belarus (Jan 12/13) € 2.20000 Ruble

Lithuania (Jan 12/13) € 2.20000 Litas

Latvia (Jan 12/13) € 2.20000 Lats

Estonia (Jan 12/13) € 2.20000 Kroon

Cyprus (Jan 12/13) € 2.20000 Euro

Malta (Jan 12/13) € 2.20000 Euro

Luxembourg (Jan 12/13) € 2.20000 Euro

Iceland (Jan 12/13) € 2.20000 Krona

Turkey (Jan 12/13) € 2.20000 Lira

Russia (Jan 12/13) € 2.20000 Ruble

Kazakhstan (Jan 12/13) € 2.20000 Tenge

Kyrgyzstan (Jan 12/13) € 2.20000 Som

Tajikistan (Jan 12/13) € 2.20000 Somoni

Uzbekistan (Jan 12/13) € 2.20000 Sum

Turkmenistan (Jan 12/13) € 2.20000 Manat

Azerbaijan (Jan 12/13) € 2.20000 Manat

Georgia (Jan 12/13) € 2.20000 Lari

Armenia (Jan 12/13) € 2.20000 Dram

Yemen (Jan 12/13) € 2.20000 Rial

Oman (Jan 12/13) € 2.20000 Rial

Qatar (Jan 12/13) € 2.20000 Riyal

Bahrain (Jan 12/13) € 2.20000 Dinar

Kuwait (Jan 12/13) € 2.20000 Dinar

Saudi Arabia (Jan 12/13) € 2.20000 Riyal

UAE (Jan 12/13) € 2.20000 Dirham

Jordan (Jan 12/13) € 2.20000 Dinar

Lebanon (Jan 12/13) € 2.20000 Pound

Syria (Jan 12/13) € 2.20000 Pound

Iraq (Jan 12/13) € 2.20000 Dinar

Iran (Jan 12/13) € 2.20000 Rial

Afghanistan (Jan 12/13) € 2.20000 Afghani

Pakistan (Jan 12/13) € 2.20000 Rupee

Bangladesh (Jan 12/13) € 2.20000 Taka

Sri Lanka (Jan 12/13) € 2.20000 Rupee

Nepal (Jan 12/13) € 2.20000 Rupee

Bhutan (Jan 12/13) € 2.20000 Ngultrum

Maldives (Jan 12/13) € 2.20000 Rufiyaa

Seychelles (Jan 12/13) € 2.20000 Rupee

Mauritius (Jan 12/13) € 2.20000 Rupee

Reunion (Jan 12/13) € 2.20000 Euro

Mayotte (Jan 12/13) € 2.20000 Euro

Madagascar (Jan 12/13) € 2.20000 Ariary

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Zimbabwe (Jan 12/13) € 2.20000 Dollar

Botswana (Jan 12/13) € 2.20000 Pula

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South Africa (Jan 12/13) € 2.20000 Rand

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Czech Rep (Jan 12/13) € 2.20000 Kor

Slovak Rep (Jan 12/13) € 2.20000 Kor

Hungary (Jan 12/13) € 2.20000 For

Slovenia (Jan 12/13) € 2.20000 Tolar

Croatia (Jan 12/13) € 2.20000 Kuna

Bosnia (Jan 12/13) € 2.20000 Mkn

Serbia (Jan 12/13) € 2.20000 Dinar

Montenegro (Jan 12/13) € 2.20000 Dinar

Albania (Jan 12/13) € 2.20000 Lek

Moldova (Jan 12/13) € 2.20000 Leu

Ukraine (Jan 12/13) € 2.20000 Hryvnia

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NEW YORK STOCK EXCHANGE PRICES

EUROBENCH "INSECTS" INDICES
 A list of indices for various countries and currencies, including the Euro, British Pound, and US Dollar. The table includes columns for the index name, its value, and the percentage change from the previous day.

Index	Value	% Change
EUROBENCH "INSECTS" INDEX	100.00	0.00
EUROBENCH "INSECTS" INDEX - EURO	100.00	0.00
EUROBENCH "INSECTS" INDEX - POUND	100.00	0.00
EUROBENCH "INSECTS" INDEX - DOLLAR	100.00	0.00

The table continues with numerous other indices for various countries and currencies, including the Japanese Yen, Swiss Franc, and Australian Dollar. Each entry includes the index name, its current value, and the percentage change from the previous day.

The table is organized into several sections, with each section containing a list of indices and their corresponding values and percentage changes. The indices are listed in alphabetical order, and the values are rounded to two decimal places.

The table is a comprehensive list of indices for various countries and currencies, providing a snapshot of the market at the time of publication.

GLOBAL EQUITY MARKETS

US INDICES

Ann Jones	Jun 11	Jun 7	Jun 7	1989/90	Size completion	Time	
	11	7	7	High	Low	(hr)	
Johnstone	8519.08	9543.82	9537.78	9543.32	7588.07	9543.32	41
Horne Bonds	106.49	106.28	106.43	107.17	104.62	107.17	543
Marshall	2386.22	2360.28	2319.67	2386.02	2245.00	2386.02	170
Zimmer	307.41	278.14	311.21	307.09	292.66	307.09	16
DJ Ind. Div's High 9751.40 Low 9448.08 (647.29) (Monthly)							
DJ High 9543.82 9547.08 Low 9539.93 (647.05) (Monthly)							
Standard and Poors							
Compustat	1283.88	1275.00	1288.73	1275.88	927.69	1278.00	4
Industrials	1516.78	1527.28	1521.82	1589.43	1307.40	1638.91	2
Financial	136.76	139.67	132.82	147.28	85.81	147.68	7
Other	604.04	611.86	608.19	611.86	477.28	611.86	4
NYSE Comp	707.22	707.78	703.88	704.68	683.75	704.68	2344
NYSE Comp	2384.28	2344.41	2365.08	2394.68	2149.12	2384.28	54
NYSE Comp	433.13	431.25	427.81	431.41	418.28	431.41	123
NYSE Comp	38.11			37.82	37.89	38.11	25.58

RATIOS						
Ann Jones Ind. Div. Yield	Jun 8 1.58	Dec 51 1.68	Dec 24 1.68	Dec 24 1.81	Year ago 1.81	
& P Ind. Div. yield	1.11	1.17	1.17	1.48	1.48	
& P Ind. P/E ratio	1.11	37.82	37.89	37.89	25.58	

INDEX FUTURES				
W BUL 1990	Open	Latest	Change	High
Mar	1285.00	1288.50	-30.50	1277.50
Jun	1274.50		-24.70	1274.50
W BULCH 2195	Open	Sell price	Change	High
Mar	1320.00	1338.00	-60.00	1320.00
Jun	1320.00	1320.00	-60.00	1330.00

WORLD MARKETS AT A GLANCE

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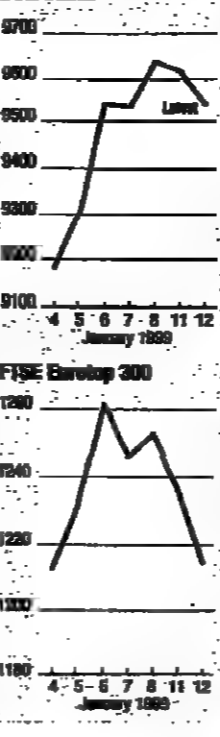
US DATA

MARKET ACTIVITY									
Oil Volume (Jan 11 Jan 6 Jan 7									
201,000 204,000 192,000									
1975 1976 1977									
NYSE 2,580 2,580 2,543									
1,352 1,352 1,352									
NYSE 2,580 2,580 2,543									
1,352 1,352 1,352									
NASDAQ 114,730 128,674 126,642									
New York New York New York									
31 31 31									
NY NYSE TRADING ACTIVITY Volume = 461,800,000									
IN ACTIVE STOCKS					IN TRADING ISSUES				
Monday	Stocks	Open	Day's		Monday	Open	Day's		
			Change	%			Change	%	
Amex/	17,802.10	95	-36 1/2		SP				
Amex/	18,000.00	49 1/2	-1 1/2		SP	53 1/2	+4 1/2	+14.8	
Amex/	18,750.00	20 1/2	-4 1/2		Amex/	55	+2 1/2	+5.8	
Amex/	19,125.00	57 1/2	-1		Amex/	37 1/2	+4 1/2	+12.9	
Amex/	19,400.00	57 1/2	-1		Amex/	32 1/2	+4 1/2	+13.8	
Amex/	21,000.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	21,375.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	21,750.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	22,125.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	22,500.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	22,875.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	23,250.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	23,625.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	24,000.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	24,375.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	24,750.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	25,125.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	25,500.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	25,875.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	26,250.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	26,625.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	27,000.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	27,375.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	27,750.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	28,125.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	28,500.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	28,875.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	29,250.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	29,625.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	30,000.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	30,375.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	30,750.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	31,125.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	
Amex/	31,500.00	57 1/2	-1		Amex/	28 1/2	+4 1/2	+15.8	

Low	High vol.	Open Int.	High vol.	Open Int.	Open	Settle
281.02	104,542	384,855	281.02	104,542	4195.0	4195.0
274.50	104	7,694	274.50	104	4205.0	4205.0
Low	High vol.	Open Int.	High vol.	Open Int.	Open	Settle
3200.0	30,470	150,124	3200.0	30,470	5247.0	5247.0
3110.0	1,108	28,987	3110.0	1,108	5243.5	5243.5

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Dow Jones



JAPAN

		Jan		Feb		Mar		1997/98		Data completion	
		12	11	10	9	8	7	Low	High	Low	High
Volume 225 TRADING OF CEREALS 1997/98 in US\$ million IN THE UK TRAINING ACTIVITY								TRADING 2000	2000.5	85.25	
Volume : 200,430,000											
IN BIGGEST MOVERS											
Trading		Stocks change	Close price	Day's change	Trading	Close price	Day's change	Day's change			
Wheat	9,871,240	110			Wheat	462	+32	+8.8			
Barley	8,174,000	267	+1		Barley	257	+49	+5.6			
Maize	7,240,000	110	+55		Maize	134	+11	+2.3			
Wheat	6,275,000	270	+1		Wheat	244	+22	+9.3			
Barley	5,240,000	270	+1		Barley	234	+11	+8.8			
Maize	4,620,000	437	+10		Maize	138	+9	+7.5			
Wheat	4,240,000	110	+1		Wheat	237	+23	+7.2			
Barley	4,240,000	110	+1		Barley	190	+3	+6.2			
GERMANY											
		Jan		Feb		Mar		1997/98		Data completion	
		12	11	10	9	8	7	Low	High	Low	High
Volume 120.10 207.00 202.00 217.45 209.00 in US\$ million IN FARMER'S TRAINING ACTIVITY								2000	2000.5	531.10	
Volume : 100											
IN BIGGEST MOVERS											
Trading		Stocks change	Close price	Day's change	Trading	Close price	Day's change	Day's change			
Wheat	588,210	110	-8.8		Wheat	25.95	+1.58	+7.6			
Barley	467,273	110	-8.8		Barley	32.3	+1.5	+6.8			
Maize	419,572	110	-8.8		Maize	30.0	+1.0	+4.1			
Wheat	385,181	117.7	+60.0		Wheat	26.0	+0.8	+3.4			
Barley	451,204	110	-8.8		Barley	34.3	+2.7	+7.2			
Maize	391,414	110	-8.8		Maize	30.0	+1.0	+4.1			
Wheat	391,414	110	-8.8		Wheat	30.0	+1.0	+4.1			
Barley	391,414	110	-8.8		Barley	30.0	+1.0	+4.1			
Maize	391,414	110	-8.8		Maize	30.0	+1.0	+4.1			

Low	Est. vol.	Open int.	Open	Sell
4167.0	75,670	50,591	721.00	70
4140.0	674	7,625	734.00	71
3211.0	51,104	110,968	7530.0	74
3236.0	2,329	6,910	2400.0	73

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FRANCE

	Jan 11	Jan 10	High	Low	Stops completed	High	Low
Jan 10	410.70	410.70	410.45	410.45	4098.40	2062.54	4388.40
Jan 11	410.70	410.70	410.45	410.45			
Volume: 512,300,000							
NETTYE STRICKS							
	Sticks traded	Sticks traded	Day's change	Thursday	Close price	Day's change	Day's change
Jan 10	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 11	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 12	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 13	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 14	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 15	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 16	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 17	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 18	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 19	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 20	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 21	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 22	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 23	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 24	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 25	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 26	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 27	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 28	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 29	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 30	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 31	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 32	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 33	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 34	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 35	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 36	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 37	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 38	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 39	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 40	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 41	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 42	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 43	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 44	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 45	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 46	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 47	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 48	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 49	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 50	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 51	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 52	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 53	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 54	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 55	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 56	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 57	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 58	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 59	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 60	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 61	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 62	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 63	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 64	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 65	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 66	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 67	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 68	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 69	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 70	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 71	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 72	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 73	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 74	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 75	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 76	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 77	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 78	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 79	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 80	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 81	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 82	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 83	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 84	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 85	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 86	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 87	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 88	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 89	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 90	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 91	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 92	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 93	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 94	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 95	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 96	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 97	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 98	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 99	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 100	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Volume: 512,300,000							
NETTYE STRICKS							
	Sticks traded	Sticks traded	Day's change	Thursday	Close price	Day's change	Day's change
Jan 10	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 11	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 12	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 13	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 14	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 15	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 16	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 17	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 18	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 19	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 20	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 21	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 22	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 23	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 24	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 25	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 26	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 27	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 28	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 29	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 30	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 31	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 32	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 33	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 34	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 35	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 36	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 37	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 38	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 39	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 40	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 41	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 42	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 43	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 44	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 45	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 46	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 47	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 48	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 49	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 50	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 51	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 52	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 53	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 54	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 55	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 56	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 57	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 58	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 59	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 60	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 61	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 62	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 63	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 64	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 65	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 66	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 67	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 68	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 69	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 70	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 71	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 72	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 73	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 74	1,500.49	98.2	+1.9	Use	68.0	+11.6	+11.6
Jan 75	1,500.49	98.2	+1.9	Use	68.0	+11.6	

Change	High	Low	Est. vol.	Open Int.
-15.50	728.50	708.00	29,903	104,272
-15.50	730.75	711.50	6,350	3,353
-57.0	7600.0	7382.0	37,580	135,351
-73.0	7400.0	7400.0	512	2,067

	Jan 8	1907/8 High	1908/9 Low	± 1 Year	± 2 Yr		
1.63	817.74	879.68	734.98	388.02	219.08	1.87	28.5
1.78	1192.75	1432.83	229.98	819.43	219.08		
<i>Local composite line segment, not marked lines</i>							
1.24	81	41.71	67.98	25.83	51.98	na	na
<i>and other stations</i>							
1.61	61.69	47.28	19.09	23.24	48.08	2.14	21.8
1.88	14.91	168.76	19.09	165.41	4.98		
<i>most while in December station more scattered, less marked</i>							
1.15	94.51	162.48	67.98	174.29	291.98	na	na
<i>by local station</i>							
1.63	31.83	129.28	29.98	489.41	48.98		
1.61	42.42	129.28	29.98	12.28	183.98		
1.81	68.41	129.28	29.98	12.28	183.98	4.82	4.8
<i>at station</i>							
1.25	53.23	94.63	11.49	38.83	149.98	0.59	28.4
<i>at station, not while in station, not while station station</i>							
1.41	91.41	97.22	17.78	94.23	519.98	1.22	94.8
1.63	38.81	76.74	29.98	48.13	349.98		
1.83	233.42	298.28	29.98	291.79	519.98	2.14	28.7
<i>at station</i>							
1.44	763.7	978.28	29.98	1038.5	519.98	1.3	24
1.18	476.21	822.28	29.98	391.28	519.98	na	na
<i>at station, not while in station, not while station</i>							
1.49	541.75	877.28	29.98	1038.5	519.98	1.88	18.2
<i>at station, not while in station, not while station</i>							
1.59	50.59	10.59	10.59	10.59	10.59	2.51	55.1
<i>at station, not while in station, not while station</i>							
1.55	279.51	450.88	29.98	107.28	819.98	4.18	11.2
<i>at station, not while in station, not while station</i>							
1.4	455.18	788.28	23.09	289.42	519.98	na	na
<i>at station, not while in station, not while station</i>							
1.79	892.26	879.71	31.59	849.16	15.88		
<i>at station, not while in station, not while station</i>							
1.64	377.26	16.51	91.69	362.29	519.98	na	na
1.84	118.59	118.59	91.69	362.29	519.98	na	na
1.22	359.54	307.82	29.78	263.87	819.98		
1.48	391.55	391.55	91.69	362.29	519.98		
1.14	123.32	123.32	29.78	86.55	519.98		
1.22	233.42	286.19	29.78	107.28	819.98		
1.48	23.88	29.71	362.29	161.71	519.98		
1.51	121.48	123.12	29.69	86.41	29.69		

THE NASDAQ-AMEX MARKET GROUP

[illegible]

THE NASDAO-AMEX MARKET GROUP

[illegible]

STOCK MARKETS

Strong yen muscles its way centre stage

WORLD OVERVIEW

The currency markets stole the limelight from the stock exchanges yesterday as an apparent burst of intervention against the yen reversed the Japanese currency's rise, writes Philip Coggan.

The dollar briefly bounced above the ¥112 level, halting a trend of weakness against the yen that set in last August.

The yen's strength was positive for world markets

for a while, relieving the pressure on the Chinese and Hong Kong currencies, but recently the trend has been less well received.

A strong yen weighs on the prospects of Japanese exporters, further burdening the troubled Tokyo equity market and it was starting to weigh on US Treasury bonds, a key support for Wall Street.

While US Treasury bonds recovered yesterday, the gap between their poor perfor-

mance and the record-breaking run of equities means that valuations have become further stretched.

According to the information company IBES, US equities, as measured by the performance of the Standard & Poor's 500, are 17.4 per cent overvalued.

IBES says the market has only been more overvalued on four occasions in recent years - 1987, 1991, 1997 and 1998. On all of these occasions, apart from 1991, a cor-

rection in share prices followed.

IBES also indicates that the earnings of the S&P 500 companies fell 1.6 per cent in 1998. Forecasts for 1999 earnings growth remain high, but have been revised down from 18.8 per cent to 16 per cent.

US equities lost ground in early trading but there was little evidence that this was anything more than profit-taking, a trend that also affected European bourses.

Concern about the financial position of Brazil, where the federal government is locked in a debt battle with one of the states was one factor inducing caution.

Nor have the economic worries about the developed world, so prominent in the third quarter last year, entirely gone away. There was yet more evidence of a slowdown in the German economy, as industrial output in November was revealed to be 2.3 per cent

down on the previous month.

This data came on top of weak forecasts of business confidence, poor purchasing managers' surveys and weak manufacturing orders.

Analysts said that German gross domestic product may have declined in the fourth quarter of 1998.

With the core European nation in difficulty, the pressure on the European Central Bank for a cut in interest rates is intensifying.

EMERGING MARKET FOCUS

Big fall spoils Bombay party

India's stock market fell sharply yesterday, putting at least a temporary halt to a strong new year rally. The benchmark S&P 500 index plunged 78 on profit-taking and squaring-up of long positions to close at 3,533.

However, the market is still well up on the year after a remarkable first week of January when it leapt more than 10 per cent in record volumes.

The bull run continued a rally which began at the start of December when the index languished near a five-year low at 2,725. It rose almost 30 per cent in six weeks to breach 3,500 in intra-day trading this week before falling back. Even now, the index is 23 per cent higher than on December 1.

The rise has been broadly based. The first stocks to pick up were old favourites software, pharmaceutical and consumer industries, but banks and heavy industrials soon joined the party.

The late charge by big industrial stocks has been spectacular after a year of underperformance. Tata Engineering and Locomotive, the truck company, is up more than 70 per cent since the start of December when it unveiled a new car.

Information technology stocks rose strongly on fresh global interest in the sector. But the macro-economic environment remains bleak with low growth, exports down and a fiscal deficit up.

Why this enthusiasm? One answer is that India is finally joining the Asian emerging market rally. Having missed out until December, it has much ground to make up. The second is that a lot of bad news was priced into the market by late November. Then the government had just been thrashed in three regional elections. Inflation was soaring and the biggest mutual fund, Unit Scheme 64, teetered on the brink of collapse.

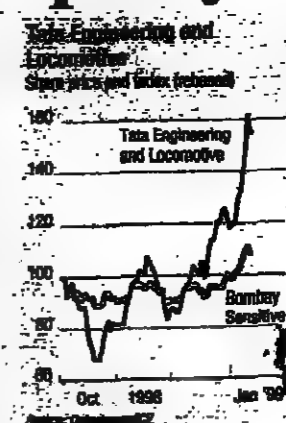
Two months later the government is still in office. Inflation is down, and Unit Scheme 64 remains afloat, awaiting a government-sponsored rescue plan. The absence of further bad news drew attention to the low valuation of stocks. By November many industrials traded at 5-6 times earnings. With India set to post positive growth of about 5 per cent, this seemed niggardly.

From early December, speculators bet that low valuations would tempt back foreign investors who withdrew more than \$500m from the Indian stock market last year.

The rally foundered when foreign funds bought in earnest in the first days of January but faltered when they turned net sellers on Monday. The question is whether there is a genuine inflow of new money from global portfolio reallocation, or whether existing India funds moving back to equities from cash.

Foreign buying may support the market near current levels but is unlikely to fuel a further strong rally.

In any event, the news flow from now could be negative, with a difficult budget, gyrations in privatisation policy and the prospect of political instability. Yesterday's fall could mark the end of the new year party.



High-techs tumble on profit-taking

AMERICAS

A broad sell-off hit US shares in early trading as investors skimmed off recent gains from high-technology leaders ahead of earnings announcements, writes John Lobato in New York.

The Nasdaq composite registered a loss of 57.31 or 2.4 per cent at 2,327.26 while the Dow Jones Industrial Average was 116.63 or 1.21 per cent lower at 9,503.36 and the broader Standard & Poor's 500 index 19.47 or 1.24 per cent down at 1,244.41.

Anticipation of quarterly and year-end results from Intel and Yahoo! helped keep the semiconductor and internet sectors under pressure in early trading. Intel lost 3.3% to reach \$188.40 and Yahoo! was off \$12.45 at \$99.00.

Blue-chip and large company shares also fell back on average, despite steep rises in some issues.

Lower cyclical and financial stock prices weighed on the Dow. Aluminex Company of America lost 2.8% to \$66.75 after Morgan Stanley Dean Witter downgraded the shares to "underperform". Citigroup was off \$1.15 to \$66.15 after the company announced a new redeemable stock programme.

But Walt Disney prospered in active trading, rising 3.3% to \$37.45. The company, which has launched a new online alliance with InfoSeek, enjoyed a rating upgrade by Salomon Smith Barney to "buy".

Most leading internet

shares were down, with Amazon.com 1.7% lower at \$167. Online brokerage shares were higher after E*Trade said it had a stake in a new online investment bank. E*Trade gained 3.9% to reach \$66.75.

Fortune Brands climbed 8.1% or more than 5 per cent to \$22.45 after the company said it expected a double-digit rise in 1999 earnings. International Paper shares fell 4.4% to \$45.15 after the company reported quarterly results.

Small-company shares were pulled lower, sending the Russell 2000 index down 5.31 to 427.82.

US Treasuries rallied, with the benchmark 30-year bond 1.4% higher at 100.48, sending the yield down to 5.218 per cent.

Banking shares also fell back, with Chase Manhattan down 3.3% to \$73.75. Washington Mutual fell 4.4% to \$42.15 after Merrill Lynch raised it to near-term buy.

TORONTO slipped in early trading as resources lagged. The TSX-300 composite index was off 58.90 or 0.8 per cent at 6,786.41.

Eleven of the index's 14 sub-indices moved lower. The gold and precious metals sector fell 3.3 per cent after a dip in the New York gold price.

Placer Dome retreated \$1.80 or 6.5 per cent to \$28.60, while Barrick Gold Corp declined \$1.20 or 3.7 per cent to \$31.20.

São Paulo plunges further on debt fears

SAO PAULO plunged again on worries about the 90-day debt moratorium announced last week by the state of Minas Gerais.

The Bovespa index had dived 661 or 8.5 per cent to 5,949 by mid-session, making a fall of 20.3 per cent since the state announced last Thursday that it would cease debt payments to the federal government.

Preferred receipts in market leader Telebras had fallen \$47.20 or 4.5 per cent to \$97.60.

CARACAS fell sharply as

investors took their cue from their Brazilian counterparts. By mid-session the IBC index had declined 19.91 or 6.9 per cent to 4,336.28.

The appointment of Mariza Laguerre as finance minister, announced on Sunday before a market holiday on Monday, was completely overshadowed by events in Brazil.

MEXICO CITY continued to lose ground as financial markets were battered by uncertainty over Brazil. The IPC index was down 3.0 per cent to 109.50 at 3,482.60.

Brazil worries weaken Milan

EUROPE

A second day of consolidation in MILAN drove the Mibtel index 2.2 per cent lower, although individual stocks put in strong performances. The index's 536-point fall to 24,119 reflected concerns about the Brazilian economy and the strength of the dollar.

Support for the market, which finished 33 above its session low, came from buying of selected blue chips. Telecom Italia rose 10.4 cents or 1.3 per cent to €8.50, Eni, the energy group, gained 5.4 cents to close at €5.58 and Alitalia, the airline, closed 7.5 cents or 2.2 per cent higher at €3.82.

Olivetti, the telecommunications and computers group, slid on a broker's downgrade and rumours that it wanted to take over

The FTSE Europe 300 index fell 19.23 or 1.56 per cent to 1,215.91. See Euro Prices page.

Telecom Italia. The stock shed 14.3 cents or 4.5 per cent to end at €3.03.

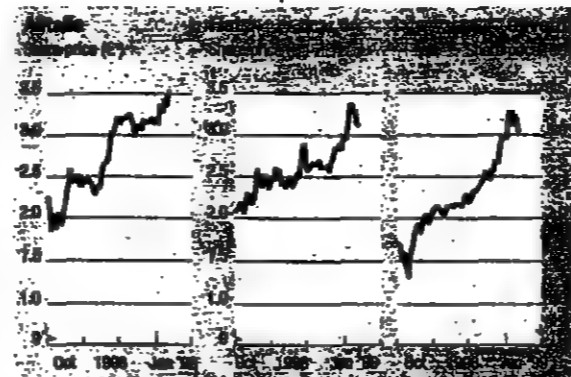
Fiat, the carmaker, continued its decline of the last few days, falling 6.9 cents or 2.8 per cent to €3.10. The stock has fallen 7.4 per cent in the last four sessions.

FRANKFURT saw a second day of consolidation, which left the Xetra Dax index 70.34 or 1.3 per cent weaker at 5,196.13.

Bank stocks were hard hit. Dresdner Bank led the retreat, losing €2.10 to €39.59 in spite of reassurance that its exposure to China's failed Citic trust amounted to a "low double-digit million mark" figure.

However, traders said there were concerns the banks could be open to further such liabilities. Deutsche Bank gave up €1.95 to €53.93 and Commerzbank remained under pressure, losing 23 cents to €27.17 after Monday's strong sell-off.

Deutsche Telekom edged up 28 cents to €32.68, boosted by the prospect of further restructuring in the European telecom sector. Mann-



neumann put on €1.95 to €114.90.

Car stocks were weak on worries about slowing sector growth. VW lost €2.80 to €73.60 in spite of a 7.5 per cent increase in 1998 group vehicle deliveries. BMW lost €2.70 to €68.20 and DaimlerChrysler fell 50 cents to €91.

Industrial group Siemens edged 5 cents higher to €61.75. Traders said market sentiment about the company's ability to achieve a turnaround was recovering.

PAEN turned lower with financials under pressure on concerns over their exposure to China's failed Citic trust. The CAC-40 index, which picked up to an early €4,113.67, finished 101.20 lower on the day at 4,106.70.

Computer services group Cap Gemini was the main drag on the index, falling €20 or 12.8 per cent to €136 after a Morgan Stanley downgrade. Other analysts agreed that the group's valuation looked high after sharp gains at the start of the year. The shares have been on a downward trend since peaking at €182.90 on January 6.

Among financials, CCF lost 66 or 7.6 per cent to €78.50. Cheuvreux confirmed that it had cut its recommendation on the bank. Société Générale lost €4.90 or 2.7 per cent to €182.90 in spite of reassurance that its Citic exposure, at \$25m, was nowhere near its exposure to Russia and Indonesia.

Imetal shot up 11.6 per cent as the stock was requested after its bid for

English China Clays. The shares touched a high of €108 before closing €10.40 better at €98.80.

AMSTERDAM fell victim to nerves about the effects of emerging markets problems on Dutch company results.

The AEX index fell 9.58 or 1.7 per cent to 536.24, adding to the 2.4 per cent decline the market suffered on Monday. Investors deserted Akzo Nobel, the chemicals group that attracted interest last week. The group, 4.5 per cent down on Monday, slipped another €1.60 or 6.1 per cent to €23.20.

The return to favour of Beas, the software company, also appears to have been short-lived. The company was the biggest faller, closing €1.25 or 9.9 per cent lower at €11.55.

ZURICH was lower on profit-taking, with investors

Weaker rand hits Jo'burg

SOUTH AFRICA

Investor concerns about Brazil and the weakness of the rand sent Johannesburg lower in the afternoon.

The all-share finished 17.3 or 0.3 per cent lower at 5,563, still 432.5 or 8 per cent

higher than at the start of the year.

Banks slipped on worries that the rand's slide to a four-week low against the dollar would cause interest rate cuts to be delayed. BOE shed 41 cents or 8.6 per cent to end at R4.37.

Nikkei falters for third day

ASIA PACIFIC

The volatility of the yen caused jitters in TOKYO where the Nikkei average gave back early gains to finish lower for the third day running, writes Michiko Nakamura.

Profit-taking began after the Nikkei rose 150 points in the morning on positive sentiment about the dollar's rebound against the yen.

Investors also reacted nervously to evidence of friction between the ruling Liberal Democratic party and the Liberal party with which it plans to form a coalition.

The Nikkei closed 7.51 lower at 13,390.97 while the broader-based Nikkei 300 closed up 0.28 at 209.52. The Topix index of all listed shares fell 1.41 to 1,055.58.

The Nikkei moved between a high of 13,535.66 and a low of 13,212.30. Volume on the Nikkei was up slightly at 358m shares, compared with 300m on Monday. Decliners beat fallers by 716 to 390, while 169 issues remained unchanged.

The yen's mercurial performance meant some prominent exporters again came under selling pressure. Although some issues regained ground lost on Monday, Sony fell for the ninth day running, losing

¥70 to ¥7,290. JR East, the privatised railway company, surged ¥43,000 or 7 per cent on a report that the government had decided to scrap plans to sell a second tranche of shares by the end of March.

Nissan Motor gained ¥5 to ¥388 after reports that DaimlerChrysler co-chairman Juergen Schrempp had said his company had not ruled out taking an equity stake in the Japanese manufacturer.

SEOUL's weakness was attributed to consolidation after the market's 12 per cent rise since the start of the year and institutional investors' program selling linked with the index futures market. The composite index fell 9.76 or 1.5 per cent to 631.19 after moving between 621.67 to 651.55.

HONG KONG staged a late rally to end higher due to futures-related buying and covering of short positions. The Hang Seng index closed up 77.29 at 10,711.58 after ending the morning down 1.5 per cent at 10,477.84.

Some analysts said some foreign fund houses were moving to squeeze short sellers by placing buy orders.

The futures-related buying drove blue chips higher, led by Swire Pacific A which gained HK\$1.30 or 3.5 per cent to HK\$38.90. Hang Seng

rose HK\$2.25 or 3 per cent to HK\$76.25 and HSBC Holdings HK\$2 to HK\$39.4.

China-affiliated red-chip and H-share companies continued to flounder after more negative news related to the bankruptcy of Guangdong International Trust and Investment Corp. Red chips lost 2.5 per cent and H shares 4.2 per cent.

WELLINGTON saw selling pressure on most stocks as the new year rally ended. Telecom Corp, the largest capitalised company, was one of the few issues to prosper, up 2 cents to NZ\$5.92. Trade in Telecom accounted for 64 per cent of market turnover of NZ\$141m.

There was little joy elsewhere as the Top 40 Capital

index of leading shares closed 32.3 or 1.5 per cent lower at 2,136.61. The market is still 3.5 per cent higher than at the start of the year.

SYDNEY recovered from profit-taking to end almost flat, bolstered by a rally among resources companies. The All Ordinaries index ended 3.1 down at 2,946.3, compared with 2,913.4 at the end of last year.

Blue-chip stocks fared poorly after leading the market up last week. Lend Lease, the property and financial services group, fell \$1.15 or 5.6 per cent to \$19.21 and Brambles, the transport and waste management company, \$1.47 or 3.5 per cent to \$40.73.

Resources stocks gained an average of 3.7 per cent. BHP rose 64 cents or 5.3 per cent to \$12.73, WMC 36 cents or 7.3 per cent to \$5.33 and Rio Tinto 53 cents or 2.7 per cent to \$19.52.

KARACHI was lower, reflecting heavy selling of Pakistan Telecom, but news that Hubco had formally accused the government and the state utility of defaulting on payments had little impact on the market. The KSE-100 index ended 10.61 lower at 923.22. PT fell 65 paise to Rs18.20 while Hubco rose 15 paise to Rs13.50.

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FINANCIAL TIMES SURVEY

INFORMATION TECHNOLOGY

WEDNESDAY JANUARY 13 1999

Monthly series, next issue February 3, 1999



Financial services
Set for a global
shakeout: Pages 4-5



Electronic Business
New paths for
trading: Pages 2-8



Telecommunications
Internet: threats and
opportunities: Page 10



In the 19th century, the industrial revolution ushered in technological changes which reshaped industry, commerce and trade. Now, on the eve of the 21st century, a digital revolution - built around the ones and zeros of binary computer language - is poised to have an equally dramatic impact.

"In many ways, we are today at the place the industrial revolution was 100 years ago," says Nathan Myhrvold, chief technology officer at Microsoft, the US software giant. "It is like it was 1898. If you opened up the FT on this day in 1898, you would have thought the industrial revolution had already happened. Yet in retrospect, it had only just begun."

Indeed, it is easy to forget that it is only 50 years since the first commercial mainframe computers were developed, 30 years since the desktop personal computer first appeared and just a few years since the commercialisation of the Internet resulted in an explosion of activity on the world wide web.

Today, there are more than 400m PCs in the world, supercomputers forecast the weather and simulate nuclear blasts, and sophisticated software programs fly aircraft and run multinational companies. Spending on information technology continues to rise across all sectors even though in terms of raw power, the cost of computing has fallen by a factor of a million in the past 20 years and there is no indication that this trend is slowing.

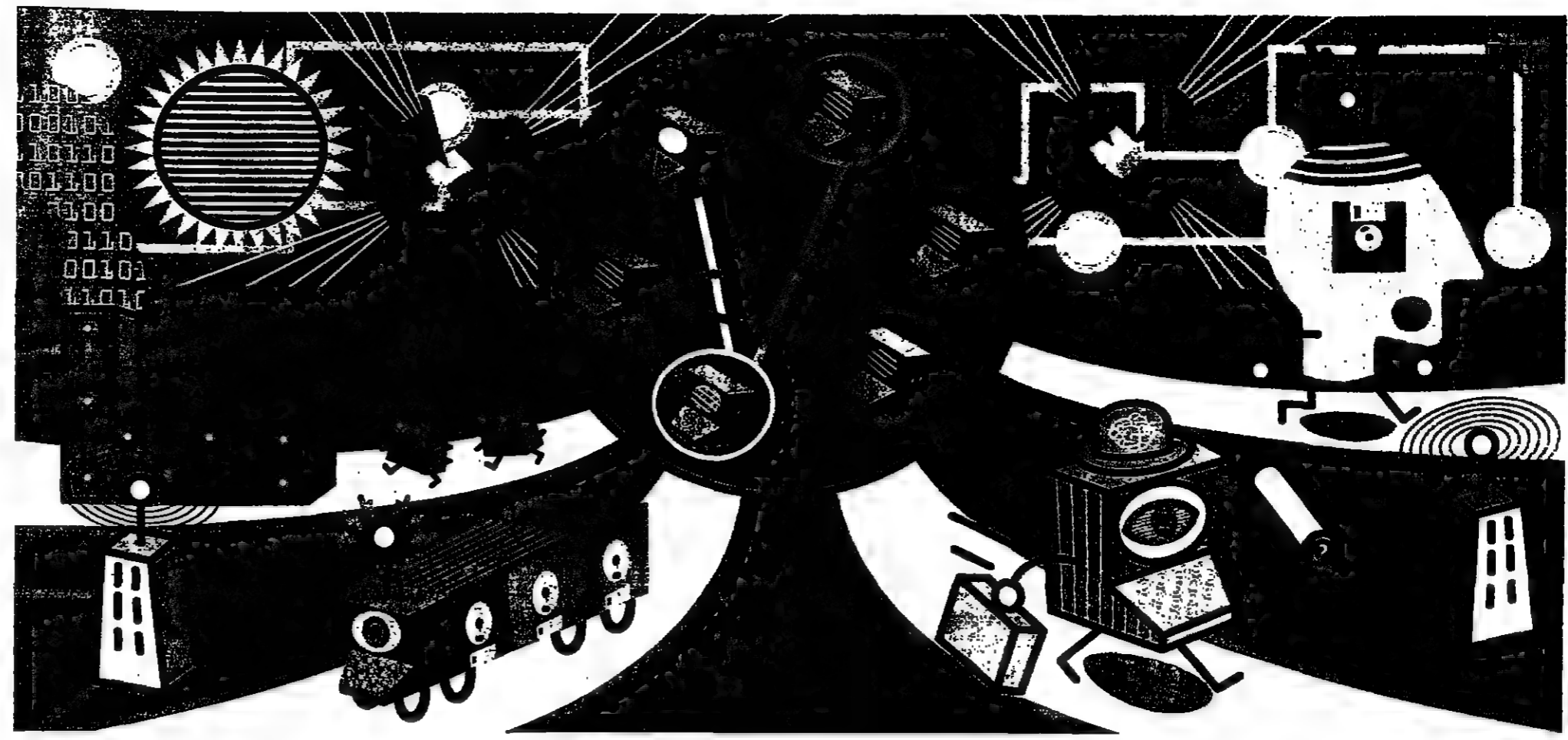
Over the next decade, technological advances will continue, fuelled by further breakthroughs in silicon chip design and fabrication. The next generation of machines built around more powerful 64-bit microprocessors like Intel's "Merced" chip will arrive early in the new millennium and will probably have "natural" interfaces including voice and "gesture analysis" as well as keyboards and mice.

Generally, technology will become more "transparent" and less obtrusive. PC sales will continue to grow. By 2008 or 2004, Sean Maloney, responsible for global sales operations of Intel, the world's biggest chipmaker, reckons China will account for more than half the PCs manufactured worldwide.

However, there will also be many other intelligent devices including smart phones, handheld wireless communicators and interactive set-top boxes, as well as "thin client" devices used for specific purposes.

These will be grouped into heterogeneous networks at home and in the workplace, comprising a wide range of devices which are able to identify and communicate with each other over broadband links. The remaining distinctions between voice and data traffic inside enterprises and elsewhere will disappear.

The growing complexity of distributed networks will place an even greater premium on network management tools in enterprises and accelerate the re-balancing of distributed client server systems back towards centralised services. Meanwhile, the continued growth of the Internet and the web will



The revolutionary shape of things to come

As information technology penetrates more deeply into all aspects of business and society, our lives are set for dramatic change, predicts Paul Taylor

facilitate a new form of services which will gradually begin to replace packaged software.

Software will probably become increasingly component-based and users will standardise on a framework, but then choose "best-of-breed" components from different vendors.

Perhaps most controversially, IT will begin to lead business planning rather than be determined by it. So far, computers have mostly been viewed as a tool to automate existing processes and to improve business efficiency, although - as the year 2000 computer date problem has shown dramatically - many organisations have become heavily dependent upon computers.

This growing reliance on IT systems is being driven by a wide range of factors, including market liberalisation, technology convergence and the globalisation of business activity.

Globalisation, in particular, has forced organisations to compete across geographic divides and meet the requirements of their customers, wherever they are - a challenge highlighted by the Internet's global reach.

As Craig Barrett, Intel's chief executive, noted recently, "we are already moving toward a world of 1bn connected

computers. This is like a seventh continent, it provides instant access to information and presents any organisation with the ability to make informed and quick decisions.

"It alters the 'economics of scale' equation to put the kind of resources that only used to be available to large companies, at everyone's disposal. 24-hours-a-day, seven days a week. It provides businesses, both large and small, with instant access to vendors, customers, manufacturers and customer information anywhere in the world. And it is fundamentally going to change the way we do business."

Mr Myhrvold agrees. "Information technology has not really begun to reshape business yet, but I think it will do so in lots of ways." Electronic commerce, in particular, is expected to change the way people do business fundamentally.

While the short-term focus of boardroom IT discussions will probably be on issues such as ensuring year 2000 compliance and adjusting to the euro, the next decade is likely to see some dramatic changes, driven by the dawning of what has been called "the information age".

This year will probably be an abnormal one because of the year

2000 problem "and lots of people are likely to be replacing infrastructure," says Intel's Mr Maloney. However, he believes that 2000 will see a surge of e-commerce activity.

Already, the pace of change associated with the Internet and Internet-based technologies has caught many companies and boardrooms off guard. For example, who could have guessed two years ago that a bookstore started in Seattle would be worth

Globalisation is forcing organisations to compete across geographic divides

billions of dollars even though it has yet to make a profit.

Amazon.com may well turn out to be a "wake-up" call for many traditional businesses. "I think the world is going to get fundamentally more competitive," says Mr Myhrvold. "You will have established companies that can suddenly be challenged by upstarts who in the analogue world couldn't match some giant company's hold on some market. But in the new world, faster technology

allows them to compete enormously more effectively."

The global nature of the Internet also inevitably means more competition. "Once you have hung your store front up on the Internet, you cannot help but attract global customers; it's the very nature of the beast," says Mr Myhrvold.

While some traditional intermediaries will find their roles challenged or even eliminated in the new digital world, others will evolve to take advantage of new business opportunities. Meanwhile, the relationship between suppliers and customers is also likely to change.

Already, there is evidence of a shift in the balance of power towards consumers as traditional supply chains collapse and markets become more transparent. This has far-reaching implications for the design, pricing, marketing and distribution of a wide range of goods and services.

For manufacturers, just-in-time inventory systems, shared extranets and computer-controlled logistics operations have already made business more efficient. But most IT and business consultants believe there are more gains to be made - particularly in the field of "mass customisation".

While the "dumb machines" which arrived with the industrial revolution brought about dramatic reductions in the costs of production, mass production also meant limited flexibility, for example in colours or sizes. Bespoke tailoring was replaced by low cost off-the-shelf clothing.

Mr Myhrvold and other technologists believe that IT and the use of "smart machines" now offer the potential to transform mass production into a form of "mass customisation" that will deliver the workmanship associated with individual artisans, but with the cost efficiencies of automation.

The next decade is also likely to see a further shift towards outsourcing and the "virtualisation" of business entities around global brands - both made possible by availability of low-cost, high bandwidth communications and more sophisticated IT systems.

In a fully "wired business", or what Bill Gates, Microsoft's chairman, calls one built around a "digital nervous system", it does not matter where people sit geographically or whom they work for, as long as they have access to the right information.

As Mr Myhrvold notes, we are used to talking about free trade in terms of legal or physical barriers. But there can also be

information and convenience barriers. "So many things in business are constrained silently, simply by people who might be involved not knowing or not being able to participate."

However, the explosion of information and raw data available electronically and in other forms presents challenges as well as opportunities. Several recent studies have highlighted the fact that many executives and managers feel overwhelmed by the sheer volume of data available to them and complain of "information overload" and stress.

Therefore, making this flood of data more manageable is likely to be one of the biggest challenges facing companies over the next decade. "We believe that industry is on the point of moving to a new plane," says Rick Belluso, Silicon Graphics' chief executive.

Mr Belluso's strategy for Silicon Graphics, dubbed "time to insight", is built around four tenets: traditional IT systems are maturing; problems are becoming

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ELECTRONIC BUSINESS-TO-BUSINESS TRADING by Geoffrey Nairn

A vision of 'virtual commerce' communities

The Internet encourages radically different ways of thinking about business, but companies must first overcome significant technical and cultural hurdles

Online retailing is just the tip of the electronic commerce iceberg and the IT industry hopes the next few years will see the Internet revolution extend to the much larger market for inter-business trading, creating in its wake radically new ways of doing business.

The business-to-business e-commerce market is today small, but analysts believe it could start to grow rapidly as more businesses appreciate the benefits that can be obtained by ordering goods and services online. Forrester Research, the US market research company, predicts e-commerce between businesses in the US will grow from \$11bn in 1998 to \$27bn in 2002 - eight times larger than the business-to-consumer market.

Before such predictions can be realised, however, significant technical and cultural hurdles must be overcome. One big problem is the nature of inter-business trading which is much more complex than consumer e-commerce.

The Internet retailing model and its technologies

cannot easily be adapted to the business-to-business arena. So investors hoping that e-commerce ventures in business can repeat the meteoric successes of online retailing pioneers, such as Amazon.com, are likely to be disappointed.

Another hurdle is that most business-related e-commerce projects running today are customer- or industry-specific and so the experience cannot be easily extended to other industries.

Despite the obstacles, though, there is considerable interest in bringing business trading to the Internet. One powerful driving force is the desire of large organisations to cut the time and money they spend ordering goods and services.

Industries may be using the latest supply chain management technologies to streamline their critical production processes, but the procurement function - particularly for non-critical items - is frequently overlooked. "Procurement is often the last area to be automated in a large corporation," says Eric Meier-



Old-style floor trading - as seen here at the stock exchange in Frankfurt - is increasingly being replaced by electronic trading systems. See also page 5 for the impact of IT on financial services

Rüegg, European general manager for Commerce One of the US, which specialises in software for web-based procurement.

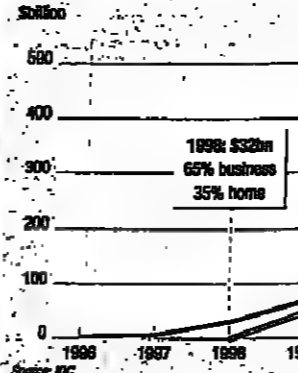
Lufthansa, the German airline, is about to start a

trial of Commerce One's technology at its Frankfurt headquarters. If the project is successful, the system could be extended to all Lufthansa offices and embrace procurement of goods and

services worth \$1bn annually.

The idea behind Commerce One's technology is to allow designated employees to choose and order non-production goods - office sup-

Worldwide electronic commerce



plies or furniture, for example - from an electronic catalogue of approved suppliers on the company's intranet. The order is then sent direct to the supplier via the Internet, bypassing a lengthy approval cycle and eliminating paperwork.

In the US, there are almost 3m people - purchasing managers, shipping clerks, sales supervisors - employed to process the paperwork involved in inter-business transactions. Planning Solutions, a US consultancy, estimates that the cost of these transactions in the US may be more than \$250bn and worldwide it could reach \$1 trillion.

The Internet might seem to offer a way to eliminate many of these "non-productive" workers. But Planning Solutions claims that businesses hoping to achieve substantial payroll cuts with net-based procurement are likely to be disappointed.

The reason lies in the limitations of today's e-commerce technologies for business transactions which overwhelmingly focus on the purchase order and the people who handle them. However, these people only account for around 7 per cent of the total in transaction-related jobs. "Even if all the purchase-order people went away" because of Internet automation, the savings are unlikely to be compelling enough to drive adoption, says James Luke, president of Planning Solutions. He believes that for e-commerce to become ubiquitous, it must have a radical impact

on the selling, shipping and receiving functions as well as purchasing.

While Internet-based business-to-business solutions continue to focus on purchasing, their impact is likely to be as limited as that of Electronic Data Interchange (EDI) networks. Proprietary EDI systems have existed for the past two decades and have been most successful in the automotive and retailing sectors.

But EDI's penetration in the US economy as a whole is only about 2 per cent. The EDI industry is now trying to extend the appeal of the technology by adapting it to the Internet. This move to "open" EDI is gathering momentum with initiatives such as the Open Buying on the Internet (OBI) standard, developed by a consortium of 50 large purchasing companies and suppliers in the US.

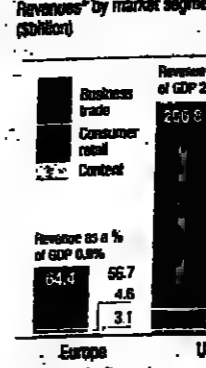
Viewpoints

Critics say the weakness of Commerce One, OBI and the many other electronic business-to-business technologies is that they adopt an evolutionary rather than revolutionary view of the Internet. The aim is to adapt existing business rules and methods to cyberspace and so save costs.

Such approaches are ultimately short-sighted, believes Gajen Kandiah, director of interactive solutions at Cambridge Technology Partners, a US consultancy.

"The B2B [business-to-business] market has in-

Electronic commerce



Source: Forrester Research

tially been driven by businesses who wanted to know if the Internet could save them money," he says. "However, in the past two years, businesses are asking us how they can use technology to go beyond their existing business model."

Cambridge believes the Internet will create "new business ecosystems" that allow companies to trade in radically different ways that evolve with time.

Mr Kandiah compares the vision with that of the natural ecosystem. "No-one sets the rules for a rain forest and the ecosystem is left to evolve." These virtual commerce communities comprise many partners, suppliers and customers who share the aim of increasing customer value and creating new market opportunities.

Cambridge is helping one large US carmaker to create one of these new business ecosystems. Once started, it will be left to develop in its own way.

"The company knows it cannot control how the Internet evolves," says Mr Kandiah, who believes virtual commerce communities will be commonplace within three years.

The Internet encourages radically different ways of thinking about business. But even if technologies can be developed to support new ways of trading, significant barriers are likely to remain - and one of the biggest is cultural.

"Revolutions take time and a lot of businesses still have their heads firmly in the sand," says Mr Kandiah.

INDUSTRY LEADERS' PREDICTIONS

Pivotal role for technology managers

From previous page

more complex; there is an explosion in terms of the volume of data; and technology is becoming pervasive.

"The challenge is to process real-time info and deliver in a way that is meaningful," he says.

Capturing new types of information, such as transaction data, processing it and storing it in a data warehouse, will offer businesses new opportunities for data

mining and spotting trends through the use of business intelligence software, he believes.

However, most senior IT executives also acknowledge that as they collect, sift and process data, enterprises will need to deal with growing public concerns about privacy and security. As Eric Schmidt, Novell's chief executive officer, notes,

"Instead of being on the Net, people will be in the Net." Mr Schmidt says the principle of privacy on the Internet is being "grossly

violated" and he insists people should be able to control their own identities on any network. "Our basic notion is that you as a user get to control how information is used," he says.

Just like the industrial revolution, it seems likely that the information revolution will throw up a wide range of social and ethical issues along with the business challenges and opportunities.

But perhaps, as Microsoft's Mr Myhrvold says, only one

thing is really certain where technology is concerned.

"One should always expect surprises. The notion that you can have a clear view of how technology is going to go for the next decade is simply wrong. There is going to be technological upheaval."

Significantly, most technologists, including Mr Myhrvold, believe that the biggest challenge will be finding the people to manage the technology.

"Managing technology will require very creative people

... there is no royal road at the moment.

"The organisations that resist change or think that technology isn't going to affect them, they are the ones that are really in trouble," he says.

"Those companies that do have charismatic managers that are able to provide leadership during this period are going to benefit enormously - in fact, in many cases they will find that technology is not just a tool, it really is the heart of their business."

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RESEARCHER'S VIEWPOINT: GEORGE COLONY

'Dynamic trade' identified as the next big wave

The president of Forrester Research sees 'a major shift of power towards the consumer, be it a man in the street or a business... It is going to really sort the sheep from the goats in terms of who can run technology best', reports Paul Taylor



Colony: 'We are heading for a winner-takes-all market'

The FT Review of Information Technology

This review is published on the first Wednesday of the month. In addition, information technology articles appear regularly in 'Inside Track' in section one of the FT. The IT Appointments section is also published each Wednesday.

FT-IT Review, editor: Andrew Fisher.
Production editor: Michael Wiltshire.
Editorial inquiries for details of the FT-IT Review programme for 1999, see page 14

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George Colony has built Forrester Research into one of America's fastest growing companies by identifying technology trends and drawing them to the attention of Forrester's global business subscriber base.

Forrester, based in Cambridge, Massachusetts, was one of the first technology consultancies to realise the implications of the commercialisation of the Internet in the mid-1990s. Now, Mr Colony, Forrester's president, believes his company has identified the next big wave.

Forrester's consultants argue that the Internet economy is moving from the early web to a new business trading model that Forrester calls "dynamic trade". They argue that this will fundamentally alter products and services, the way production schedules are determined and what pricing models are used in which industries.

"As consumers move online, there will be a requirement that companies begin to deliver in real-time," says Mr Colony. "If you look at the global 2,500 companies, we judge that only about 3 per cent today can actually do that."

Mr Colony argues that the prize for those companies that can make the transition is that they will be able to trade dynamically.

"Our definition of dynamic trade is the ability to meet current demand with customised response," he says.

"There are three aspects of dynamic trade. The first aspect is that the service component of a total product becomes more critical."

One reason for this is that

it is easier to customise service than it is to customise the product. One example of this might be what Forrester calls "smart substitution".

"If you order 20,000 light bulbs from General Electric and you want them in the four pack and GE has 20,000 light bulbs, but they are in the eight-pack, the systems at GE have to be smart enough to say we can substitute the eight packs for the four packs."

"That sounds quite simple, but actually it is rather complex for most systems today. What you are doing is adding special service to the product - in this case smart substitution."

Competition is likely to be brutish and short, and led by technology

"By using smart substitution, GE is able to deliver the light bulbs tomorrow rather than forcing you to wait for two weeks until the four packs are in."

He describes his second example - subscription toothpaste - as "kind of goofy". In this case, a consumer products company such as Procter & Gamble would provide its customers with a scanner to put in their waste-bin. When the customer threw away an empty toothpaste container, it would be scanned and the following day a new packet

of toothpaste delivered.

Mr Colony believes there will be a movement towards the subscription to physical products, rather than actually buying them on a one-off basis. "The most important value that all of us need today is time," he says. "I may pay a 5 per cent premium for subscription toothpaste because it saves me a great deal of time. I don't go to the store to buy toothpaste anymore; it's coming to me."

The second aspect of dynamic trading is what Forrester calls "build to market". Essentially, that means that instead of Ford building 20,000 mini-vans for inventory, it would build the mini-vans to order.

"Now, of course, Ford Motor Company does that today, but the lead time is approximately three months," says Mr Colony. "I was at Ford last month and they actually build a mini-van in approximately two hours, so why does it take three months to deliver? Much of it is a systems issue - the systems at Ford do not support delivery in two weeks or one week, they just won't do it."

"Of course, if Ford builds to market, it has an impact all the way down their value chain to the people who sell them tyres, to the people that sell them paint, that sell them steel, on and on and on."

While Ford's ambitions to move towards "build to market" and real time trading are constrained by its suppliers, other companies, particularly those in the personal computer industry, have

already made progress in this direction.

"The closest today are probably the PC vendors who are still selling through channels, for example IBM and Compaq," Mr Colony says. "IBM is pioneering what it calls the 'channel building strategy' where essentially, instead of IBM building PCs and sending them out to stores where they are sold, IBM sends out disk drives, motherboards and memory and they are assembled in the store to a customer specification."

While these examples focus on the retail market, Mr Colony emphasises that the heart of Internet commerce is business-to-business trade.

"When General Motors wants an engine from one of its subsidiaries, it wants the engine to be delivered exactly in time to be installed in a Chevrolet car," he says.

"Build-to-market becomes a much more important issue in the business-to-business market than in the

business-to-consumer market."

Mr Colony admits that the third component of dynamic trade - "price close to market" - is probably more controversial than the first two. "List price is a phenomenon of the western world and actually is a rather new phenomenon; it is only 150 to 175 years old. So why does list price exist?"

"I believe it exists for two reasons. One is because it is a time server, second, the value chain has been so rigid that you need a list price at the end of it to ensure that you could pay for every step along the value chain. However now we have several new dynamics."

"The first is that the consumer, or what the consumer will pay, is much more transparent because of online. The second aspect is that the value chain, using systems, is becoming flexible enough to flex to an ultimate different price every day."

He argues that the best early efforts towards "price to market" are the Internet

and auction businesses and that, on the basis of Forrester's research, online bid systems are enabling those inviting bids to extract approximately a 5 to 10 per cent cheaper price from suppliers. However, he warns that "pricing to market" holds some risks. "You have to be careful."

For example, Coca-Cola is experimenting with a smart Coke machine that would price Coke higher on a hot day and at a lower price on a cold day. "Now this is quite difficult," he says, "because there is a point where the consumer will say 'you are gouging me, you are taking advantage of me', and so it is a brand-threatening strategy for some consumer products."

Similarly, Little Caesars, the third largest pizza maker in the US, is thinking of pricing the pizza at noon at \$10 a pizza and at \$8 at 3pm. "That may be perceived by consumers as being acceptable," says Mr Colony. "It's good for Little Caesars because their traffic increases and they get better utilisation of their capital."

But he accepts there is a thin line between what consumers will accept, and what they will object to. "There is much to be learned here."

The Forrester president adds: "These are the three aspects that are driving dynamic trade and we would argue that if you are going to be a successful online company, your systems will have to be able to perform real-time and you will have to trade dynamically along these three axes."

More fundamentally, he argues: "I think we are seeing a major shift of power towards the consumer, be it a man in the street or a business. I think it is going to really sort the sheep from the goats in terms of who can run technology best. Ten or 15 per cent of companies will 'get' dynamic trade, understand it, do it first and gain a first mover advantage."

He believes it will be a "winner takes all" market. "You might have 20 players in a market and it may come down to five players who can really dynamically trade - and the other 15 players either find other work or go out of business. It is going to be very brutal, I think. Brutish and short, and led by technology."

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FINANCIAL MARKETS by Andrew Fisher

Exchanges set for a global shake-out

Although changes in traditional financial markets are happening faster than most people expected, there is still plenty of resistance to be overcome. Fully online markets with no human intervention are still a few years off

The writing is on the wall for many of the world's stock exchanges and it is technology that will largely decide their fate.

The markets of the early 21st century will be dominated by powerful computer systems and driven by the needs of demanding and cost-conscious investors. The Internet is also opening up new avenues of trading opportunity.

Thus, the traditional role of exchanges will change dramatically and many smaller ones will disappear. This explains the state of alliances, partnerships and co-operation agreements being forged between markets keen to harness the potential of information technology to their advantage.

Some exchanges, such as Nasdaq in the US and Deutsche Börse in Germany's financial capital of Frankfurt, have long put IT at the heart of their strategy. Others are catching up, while smaller ones are being pulled along in the wake of the leading players.

Big banks and institutions have invested heavily in IT systems to speed up trading and administration and they are putting pressure on exchanges to become more streamlined and efficient. With the globalisation of business, investors want the capability to trade rapidly across time zones, currencies and types of security.

In Europe, with its host of big and small securities exchanges, the euro's arrival will inevitably cause a sharp concentration. Frankfurt and London have formed an alliance, with other European bourses such as Paris joining the discussions.

Nasdaq, the electronic US

exchange (see report on facing page), where such IT giants as Microsoft and Intel are quoted, is also talking to Deutsche Börse, as well as to Hong Kong and other Asian exchanges.

But some of the most exciting developments involving the role of IT originate from outside the exchanges. Technology is propelling events along at a pace that must seem alarming to those steeped in the traditions of floor trading and open outcry.

"If there is a better, faster,

'Markets are highly complicated and emotional. You can't have everything done by computer'

cheaper way to do something, then someone will take advantage of it and the rest of the world will have to compete," Bill Lupien, the man behind the revolutionary OptiMark trading technology, said in a speech in Toronto.

"I would hope that as this world moves more and more towards global capitalism, the disciplines of that system will produce better markets and more innovation."

OptiMark, conceived on Mr Lupien's ranch in Colorado, is aimed at taking the uncertainty out of securities trading through the use of IT. Using an IBM supercomputer and unique fuzzy logic algorithms, OptiMark

enables large investors to place and execute orders anonymously, without the market getting wind of their intentions.

By eliminating "market impact" - whereby knowledge of a big impending trade moves the price before its execution - the system is designed to increase market liquidity as well as enable investors to express a range of price preferences at which they would be ready to buy or sell.

Jeff Max, a senior vice-president at OptiMark, calls it "the first market structure that guarantees participants an optimised outcome of their trading interests". Nasdaq, the Pacific Stock Exchange in California and Japan's Osaka exchange all plan to link up with OptiMark, which he says has aroused strong interest among institutions.

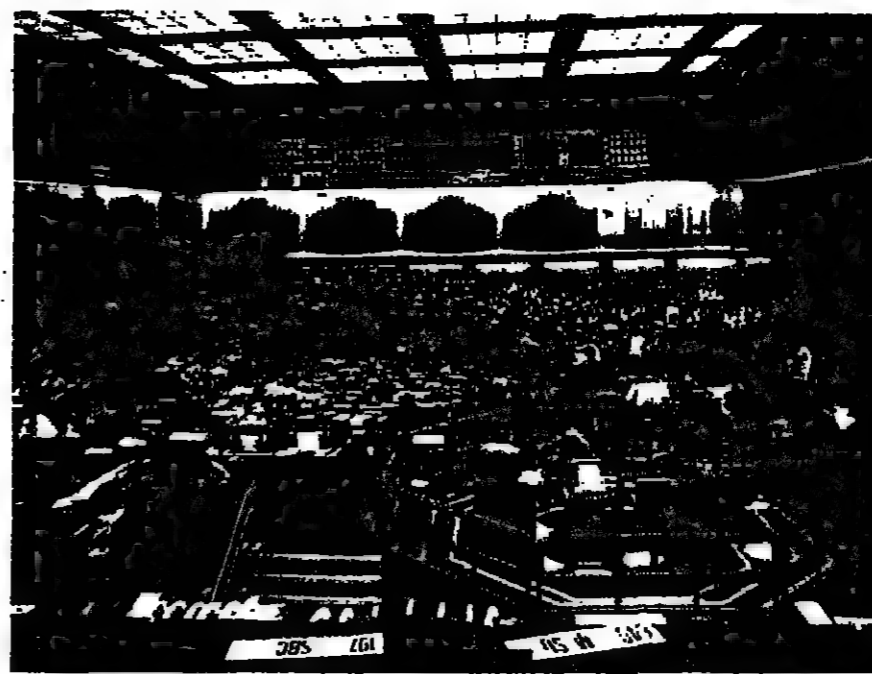
Mr Lupien, a former Pacific Stock Exchange trader who later headed the Instinet electronic trading network (now owned by Reuters), had the idea behind OptiMark before the technology was ready. Without the supercomputer's ability to perform billions of calculations in less than 1.5 seconds to match buyers' and sellers' order profiles and preferences, the system could not function.

But it is not the technology alone that is driving markets forward into a new predominantly electronic era. Also influential are the growing volume of global securities dealings, the increased emphasis on equities to help future pension performance as state systems founder and the desire of individuals to take more control over their own

finances. "Over the last 10 years," notes Mr Max, "the quantity of funds under management has skyrocketed in the US and Europe. The kind of liquidity and trading opportunity sought can't be delivered by traditional market mechanisms."

The needs of big funds and institutions are thus paramount in determining the future of exchanges. But the voice of retail investors is also becoming louder.

"One of the big things happening is more customer focus - retail and institutional," says Pat Tsien, partner in charge of financial markets strategy at Andersen Consulting. "In the US, as well as in Europe and globally, customers will



Technologically sophisticated: the Chicago Board of Trade. The floor covers 82,000 square feet, making it the world's largest futures and options trading facility

have a much greater control over their own savings."

She believes markets will still be at the core of the new financial network. "I see financial markets decomposing into a set of 'superwin-

ners', but relatively few in number. The rest will be redefined into a set of 'value networks'."

These "multi-party, multi-directional" networks will be highly flexible, often highly

specialised, and open to a variety of business and technology interests such as brokers, institutions and IT systems integrators.

Although Ms Tsien believes that changes in

financial markets are happening faster than most people expected, there is still plenty of resistance to be overcome. "There is so much history and tradition involved that things will not change overnight," says Hans Christian Iversen, a partner in the strategy division of Braxton Associates, part of Deloitte & Touche Consulting.

There are also regulatory aspects to be considered, since governments and exchanges will still have a role to play in protecting investors and setting standards for issuers of securities. Mr Iversen thinks legislation is likely to lag behind the rapid evolution of markets.

IT and investment banking experts also point out that it is one thing to integrate trading mechanisms, but quite another to put together complex settlement systems. Fully online markets with no human intervention are thus still a few years off. "Markets are highly complicated and emotional," says one London investment banker. "You can't have everything done by computer."



CASE STUDY ELECTRONIC TRADING IN CHICAGO

Older birds can still fly

With practice, floor-based traders can make the leap to computerised systems

The shift from floor-based trading to computerised systems may be proving rough for some old-time traders. But for others, it has thrown up opportunities.

Take Tony Saliba. A long-time, Chicago-based options trader, now in his 40s, he first made money trading at the Chicago Board Options Exchange in the early 1980s when business was bustling. But when the options activity dried up in the wake of the 1987 stockmarket crash, Mr Saliba branched out - first, into training and the development of simulation models, and then into

trading-related software and products. Today, Mr Saliba's business, housed in an office tower equidistant between the three big Chicago derivatives exchanges, is split between these three elements. There remains a CBOE-based options trading operation, which acts as specialist market-maker in about two dozen different issues.

But a second leg of the business is training. Mr Saliba admits that much of the business is still options-based - although clients are both domestic and overseas - but also says that a growing number of "locals"

(independent traders) at the two big Chicago futures markets have also shown an interest in getting to grips with screen-based systems.

"I hate to say this, but the older the bird, the more difficult it is to teach it to fly," he comments, suggesting that there is a natural age-based division between those would-be traders who have grown up with computers, and those for whom clicking with a mouse is not an instinctive reaction.

There is also an imaginative leap to be made, he adds. Many experienced traders, he finds, tend to think of floor-based behaviour and try to translate this to an electronic environment - without appreciating that the



Tony Saliba: "There is also an imaginative leap to be made"

techniques required to trade in a screen-based market are different. Still, he adds, encouragingly: "Even older guys, in their 40s or so, can learn with enough practice".

The final element is a software development arm. At present, this is focused primarily on products which would help automate the flow of orders to the traditional pits - a handheld terminal designed for options traders.

and another "Deckmaster" order-routing system, targeted at linking desks to the futures pits where IT is belatedly making inroads, and developed in conjunction with outside partners.

Mr Saliba has little doubt that markets are heading into a much more technologically sophisticated future, and that competition from electronic rivals can only intensify. CBOE, which is already heavily automated in terms of order inflow, (although execution is still done through open outcry), is probably better placed to withstand the onslaught. "The futures markets have a much greater degree of risk. If I could try to make the comparison, the futures exchanges are weak in order-routing, weak in order-handling, weak in transparency is difficult."

"On the other end, in competing with CBOE, (electronic exchanges) are going to bring cost-savings of 30 per cent, or thereabouts, which is not earth-shattering - and I think CBOE can

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ONLINE INTEGRITY by Tom Foremski

Aiming for higher levels of Internet security

Mathematicians at IBM claim to have developed a security technology that makes Internet transactions immune from the strongest hacker attacks

As companies rely increasingly on the Internet for linking remote users and offices - and for conducting electronic commerce - the security of their internal networks becomes a key issue. Companies must not only ensure that outsiders are unable to launch attacks on their networks but also protect the security of e-commerce transactions. Meanwhile, large numbers of Internet users are still reluctant to make online purchases because of the fear that credit card numbers could be intercepted by criminals.

Furthermore, IT managers are also reluctant to build Internet-based mission critical systems because of security concerns. "This is the main factor that prevents larger companies taking full advantage of the Internet, according to a recent survey of 200 IT managers at Fortune 1,000 companies by International Data Corporation, the US market research company."

Therefore, with potential returns on investment of about 400 per cent in building Internet-based applications, companies are failing to make substantial cost-savings compared with their current proprietary network-based operations.

Fortunately, however, there are many software products available that use powerful encryption technologies and network intrusion detection techniques to provide good levels of security. IT system software, such as Unix and Microsoft Windows NT, already has significant levels of security technology built-in. The problem, however, is that security is a constant issue and requires vigilance and updating on a regular basis.

"A lot depends on the user

and how the system is set up and administered," says David Strom, a US computer security expert. "If you use default passwords and other common settings, you are asking for trouble." Users have to be aware of "security holes" that are discovered on a regular basis and install the patches provided by the vendors, he says.

It is also important to emphasise that "there is no such thing as a perfect security system," says John Vranesich, a US security expert and founder of the web site AntiOnline.com which educates users about security issues. "It's impossible to put out a fully secure product. There will always be ways found to circumvent security. If you become complacent, that's a warning sign that you are not doing enough to ensure the security of your systems," he says.

Two main threats to networks are computer viruses that spread through the Internet and attacks by hackers who enjoy the challenge of breaking into web sites and internal networks. New types of computer viruses are constantly challenging established anti-virus products.

Based on a survey of 300 US corporations and US government institutions, the International Computer Security Association (ICSA) claims there were 46 per cent more computer virus-infected computers in 1998 than in the previous year.

Many viruses are distributed as attachments to e-mail documents, so the rise of the Internet is making virus attacks more likely. The ICSA notes that while many PCs have anti-virus software applications, they are often out-of-date and unable to prevent new infec-

tions. It recommends that anti-virus software updates be made every month instead of every three months.

Network Associates, the largest security software company, claims it has developed what it calls a revolutionary approach to countering computer viruses. Its AutoImune technology will allow companies to automatically detect, remove and create a cure for unknown viruses that infiltrate corporate networks.

AutoImune is similar to an anti-virus technology developed by IBM and licensed to Network Associates' rival, Symantec. The system uses an automated approach that constantly monitors networks and spots suspicious activities, identifying viruses and preventing their spread. "Our goal is to virtually eliminate the damage done by virus outbreaks in large corporations," says Gene Hodges, vice president of marketing at Network Associates.

Hacker attacks on company networks are also becoming more common. In early 1998, the Pentagon suffered from what it called an internationally co-ordinated series of attacks on its networks.

Hackers claimed to have accessed sensitive military documents, a claim refuted by the Pentagon, but it did lead to a big initiative aimed at developing new types of security technologies. The Pentagon plans to spend more than \$1bn annually for the next few years, developing and installing security for its classified and non-classified computer sites.

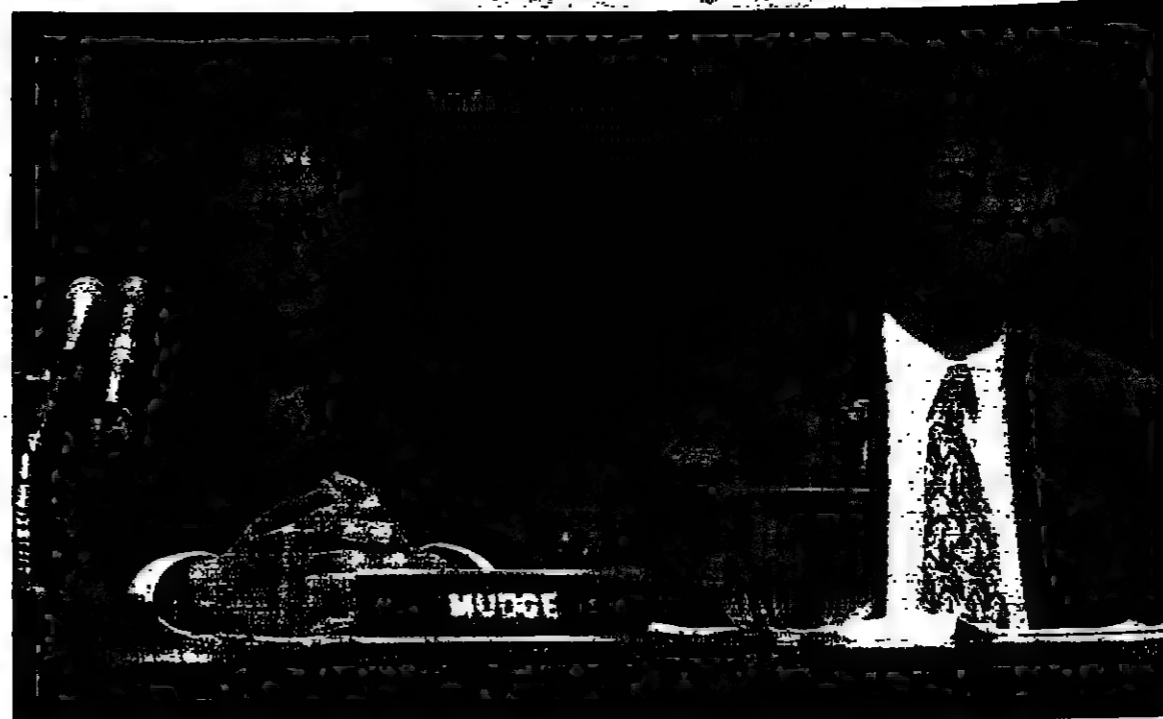
The problem with hacker attacks over the Internet is that it is almost impossible to pinpoint who is responsible. The structure of the Internet consists of huge numbers of connected servers and networks. This gives the Internet an inherent ability to avoid massive failures in one part, simply by routing

data through other parts of the network, but it also allows hackers to hide the origin of their attacks.

The US Department of Defense last year awarded Network Associates two large contracts to develop critical standards for intrusion-detection technology which may allow hackers to be tracked.

Protecting e-commerce transactions is a key issue and companies are very keen to assure potential customers that the Internet is a safe place to make purchases. Therefore, many computer companies are rushing to develop increasingly powerful security systems for such applications.

IBM, for example, claims to have developed a security technology that makes Internet transactions immune from the strongest hacker attacks. The technology was developed by mathematicians at IBM with the Swiss Federal Institute of Technol-



Tracking down hacker attacks on the Internet is almost impossible. Above, smiling computer hackers 'Mudge', left, and 'Weld Pond' testified on Capitol Hill before the US Senate Governmental Affairs Committee on computer hacking, last year. Witnesses who did not give their real names claimed that 'computer security was so lax, that the entire Internet could be disabled in a half-hour'.

ogy, using a variation on the public-key encryption system called the Cramer-Shoup cryptosystem.

"This system delivers a new level of integrity for Internet communications, and is particularly suited for e-commerce applications such as cyber-auctions,

credit card purchases, and protecting private information," says Jeff Jaffe, general manager for IBM's security products and services.

"Businesses and consumers can have greater confidence in Internet transactions, because we've effectively closed down the

only way around a cryptosystem's main line of defence."

In the US, the main issue is not the technology, but strict government controls that prevent the export of powerful encryption technologies. This causes problems for multinational companies

in being able to standardise on the same products between their various offices.

Although the US government has liberalised some controls, US high technology companies continue to call for the lifting of most export controls.

COMPUTER RESEARCH by Mark Vernon

The spirit of Silicon Valley becomes more pervasive

By 2005, voice recognition technology may supplant keyboards for data entry and controlling machines

The brightest and best minds in computer research are finding that the world is their oyster. Every leading IT corporation is desperate to hire an innovative genius to help beat competitors or bring Nobel glory to its brand.

For those who can show they possess "must have" talents, technology companies might even build a laboratory in their country of choice. But while even relatively modest IT companies spend significant and fairly

constant proportions of their budgets on research and development, the money tends to shift between "blue sky" research and commercial development, between leading edge and conceptually proven projects, and between what is fashionable and daring. The question is: what trends are likely to dominate in the next two to five years and what impact will they have on the technology used by business?

On a smart hillside close to Zurich and an hour's drive of the Alps sits one of IBM's creative powerhouses. It is packed with a crop of the IT world's elite.

The work in progress varies enormously. Some of the most interesting projects concern anti-hacking technology. Today's systems work like anti-virus software, checking that the computer is not subject to a known path of attack. But using algorithms first developed in DNA research to recognise repeated non-random patterns, unexpected changes in computer activity

could be detected as the sign of an impending hack.

"This would be a great discovery because we would be able to detect unknown attacks," says Philippe Jansen, head of information technology solutions.

Storage is another big area of concern. The IBM group working on this has developed a nanotechnology which, rather like a miniature record player, can read and write tiny grooves on a chip. It should be able to store a phenomenal 400 gigabytes (1,000 megabytes) per square inch.

Moreover, it turns out that physically, the technology speeds up as it becomes smaller. So performance is built in, too.

The mood at the IBM site in Switzerland is bullish. But as Karl Kummerle, the director, explains, the way researchers' work has changed in recent years. Consider the case of Asynchronous Transfer Mode (ATM) switching for high-speed networks.

As pure science, ATM has an elegance to compete with any other development in information technology. But as a technology for use in production, it has struggled to find a market. It provides an illuminating example of the complex relationships existing within research projects today.

"In the past, we would have built a prototype and then handed it to the developers who would have moved it on for production," explains Mr Kummerle. "But time to market is critical now and so we work hand in hand with production from the early stages."

Typically, too, ATM is not a proprietary IBM technology. Standards, for example, are set by the ATM Forum. "We have to be involved in shaping standards and implementing them, too," says Mr Kummerle.

Even the marketing potential of a technology will be brought to bear upon development strategies. "At IBM, for historical reasons, we were very focused upon ATM alone, but that has changed. Say, for the sake of argument, that Gigabit Ethernet (a high-speed networking technology) is predominant. This is bound to impact upon investment dollars and we take corrective steps as the situation becomes clearer," continues Mr Kummerle.

Indeed, the circle is complete in other cases, where customers for the technology are included in the loop from the start.

But this does not mean that research for research's sake, necessarily suffers. A strong element of blue sky work must be maintained to attract the best scientists. And companies are always wary of missing the boat or becoming too reactive. The sudden emergence of the Internet in 1996 was a powerful wake-up call for many organisations.

There is always the danger of technology runs, too - ways of solving problems that become entrenched by little more than fashion.

By way of comparison, the question has only recently been asked as to whether rockets are actually the best way to get into space. The received wisdom was that colossal power on the launch pad was the way to go. Colossal power on the desktop is now similarly under scrutiny.

Mr Kummerle admits that IBM is more focused on short-term research now, while noting that some of its recent successes are the results of originally more risky long-term projects.

"Copper chip technology has been discussed in our labs for at least 10 years. For much of that time, we thought it could not be solved. But now it's here."

His comments are borne out by Jackie Fenn, research director for advanced technology with Gartner Group. She believes it will be technologies with immediate practical and possibly revolutionary application that are most likely to surface next.

"We are seeing a lot of the research and development 'spend' in large companies going on the user interface," she says. "Computers are still too complex and require a fundamental shift to reach a larger audience."

Thus she reckons that by 2006, voice recognition technology will supplant keyboards to input data and control machines.

Further, fixed function devices will break up the PC monopoly. These are technology tools designed for particular uses of which the mobile phone, palmtop computer and AutoPC are just a foretaste.

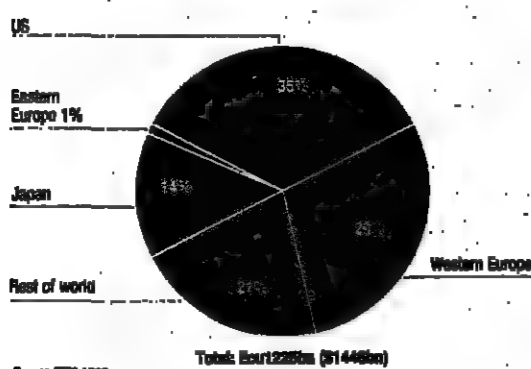
The pendulum is swinging in terms of the way research is being done, too," she notes. "Mid-sized companies in particular are centralising their research effort in order to be more proactive in their search for new opportunities."

Companies are increasingly interested in what is going on in universities - a trend of which universities are aware as they develop the means of attracting corporate sponsorship and joint ventures.

What might be called the spirit of Silicon Valley - that unique combination of commercial and intellectual entrepreneurship - is becoming more pervasive. Computer research will undoubtedly continue to power the IT of the future. But it will inevitably become more worldly and commercial in order to stay in line with users' fast-changing needs.

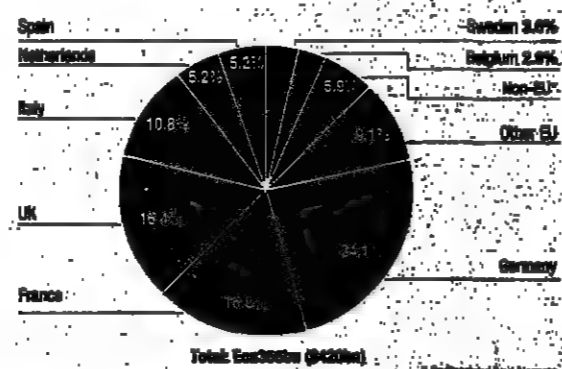
Information and communication technologies

World market, 1997



Source: EITO 1998

Western European market, 1997



Source: EITO 1998

More than 367,000 IT job vacancies in Europe

One job in six in Europe's information and telecommunications sectors remains unfilled, as graduates seek opportunities elsewhere, writes Michael Wiltshire

Europe's information and telecommunications industries now employ around two million people - an increase of 10 per cent on a year ago. However, as equipment sales rise to record levels, Europe's young people are slow to realise the opportunities that the information and communications technology (ICT) sector offers, comments Hubert Lange, a board member of Deutsche Messe, organisers of the CeBIT, the world's largest IT show, held annually in Hannover, Germany.

One job in six in Europe's ICT sector is vacant, as qualified applicants are being sought for 367,000 job vacancies, reflecting a worldwide shortage of computer skills, says Mr Stielow.

The urgent need to ensure that computer systems are year-2000 compliant is adding to the skills shortage. To attract qualified IT staff, many larger companies in the Europe and the US are offering high salaries, flexible benefits and promises of a dynamic working environment.

Meanwhile, the European ICT market is expected to grow by 7.9 per cent this year to \$287bn (\$482bn), according to the latest forecast by the European Information Technology Observatory, EITO.

"In terms of IT sales, Europe is back on the path of rapid growth," comments John Peter Stielow, chairman of the CeBIT trade fair committee. CeBIT'99, will take place from March 18-24 (see details below).

In the past year, the European IT and telecoms market has outperformed the world market as a whole, says Mr Stielow.

Although there was a downturn in East Asian and Japanese markets last year, the ICT market in Japan is likely to recover with a 4.4 per cent increase this year.

The US market, with growth rates of 9.9 per cent in 1998 and an expected 9.6 per cent in 1999, will be only marginally ahead of western Europe, says the EITO report.

Europe's ICT market is divided almost equally between information technology and telecommunications. In the IT sector, services and software now make up the lion's share, with 56 per cent of the total IT market, while hardware accounts for a mere 30 per cent.

"Information technology is following the pattern established by the telecoms industry - it is developing into a typical services industry," says Mr Stielow. European IT sales this year are likely to outstrip

telecoms for the first time, rising by 9.5 per cent to \$143bn (\$242), he says.

Professional services - for example, network services, computer centre and consulting services - are expanding at the fastest rate at roughly 15 per cent a year. Software sales are expected to rise by 36 per cent this year.

By contrast, sales of hardware products are growing at a much slower rate at around 6 per cent a year in Europe. NT servers are a positive exception, with a forecast growth rate of 36 per cent for 1999.

European telecommunications equipment sales may well reach \$143bn (\$240bn) this year, despite a sharp fall in the prices of telecom services - down by 30 per cent, in some cases.

Country-by-country comparisons of the European IT market vary only slightly, between 8 per cent and 10 per cent, says the report, which predicts that IT sales in Britain will rise by 9.6 per cent this year to \$26bn, putting the UK at the top of the European league table in terms of IT investment.

World's largest information technology show

More than 7,500 exhibitors from 83 countries will be taking part in this year's seven-day CeBIT show, located in two halls at the Hannover showground in March.

Among the exhibitors at the record-breaking event, 2,982 will come from outside Germany, with 304 from Britain, 494 from the US, and 834 from Taiwan.

Categories on display at CeBIT'99 will include:

- Information technology - the largest display area, with 1,500 exhibitors.
- Telecom systems - covering seven halls. It will be the biggest-ever telecoms display for a CeBIT event. All the large international carriers will be presented for the first time.

- Network computing, with 400 exhibitors, including a network information centre.

- More than 400 companies are displaying development, construction, production and planning systems.

- Software, consulting services and online services. This will include a software centre for small and medium-sized companies, with 250 exhibitors presenting products.

- Banking and office automation technology.

- Research and technology transfer.

- More than 200 companies will display automatic data collection systems.

- An Internet Park will highlight the latest Internet and intranet systems from 100 companies.

OPTIONS TRADERS

Where the rubber hits the road

From previous pages:

eliminate a lot of those costs. In terms of electronic routing, the transparency, the instantaneous fills, the CBOE is already there."

Even so, doesn't CBOE face a potentially formidable threat from the planned, all-electronic International Securities Exchange, which could begin offering 600 option contracts by January 2000?

"I think the ISE competitors are really the existing participants at the CBOE right now, just looking to carve up the pie a little differently," he comments.

"A lot of the people that I see being interested in ISE are hedging their bets. They want to be involved in both CBOE and ISE - and that's smart. With a little bit of good fortune, CBOE will be able to maintain a great deal of their market share."

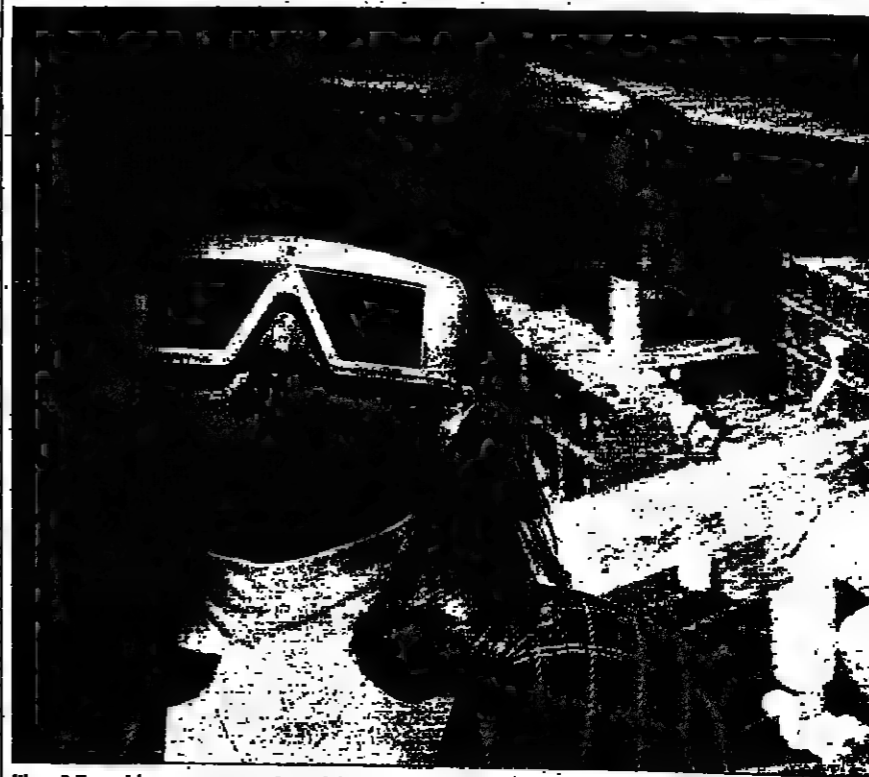
"There's a lot of naysayers who think that what we do at the CBOE and other exchanges cannot be done electronically - and I've said that I think that's laughable."

"However, there are some components of the trading day that still would be very difficult, electronically."

"But two years from now - that's when I think ISE would be up and running and a reasonable force - a lot could change in terms of the ability to do spread transactions and handle large volumes."

"That, in my opinion, is when the rubber hits the road."

Mark Taft



It's a 3-D world: aerospace engineer Michelle Gern displays the stereo glasses that give her a three-dimensional view of a space station mock-up, projected on the screen behind her at the 'holodeck', an 'immersive engineering room' at NASA's Langley Research Centre in Hampton, Virginia. With 3-D glasses, headphones and a powerful computer, it allows engineers to jump in into a simulated 3-D environment, viewing objects from all sides and manipulating them in various ways.

DIGITAL MEDIA by Christopher Price

Opportunity knocks as new challenges mount

More television channels means greater fragmentation, enhancing choice for consumers but adding to TV broadcasters' headaches

As the end of the millennium approaches, Europe's media industry, for so long characterised by limited competition and bureaucratic regulation, has begun to embrace the digital age. The results have yet to be revealed, but all the signs are that the market will undergo profound change in the next decade.

The television industry, in particular, is set to change radically as digital technology introduces more channels and interactivity for consumers, and brings increased competition and higher costs for broadcasters.

"The advent of digital television is the single most important innovation to the television since it was invented," says Noah Yaskin, media analyst for Jupiter Communications, the US

market research group.

"In Europe, the digital television platform offers another route by which content owners, advertisers and merchants can offer consumers interactive products and services."

Jupiter forecasts the number of households that will be interactive via their television sets will rise sharply early in the next millennium in the two markets most advanced in digital television, Britain and Sweden.

In the former, the group believes the number of interactive television households will rise from 0.3 per cent in 1999, to more than 19 per cent in 2002.

Sweden is forecast to increase from 0.3 per cent to 28 per cent in the same period. Elsewhere, France is expected to be at 13 per cent and Germany at just 2 per

cent in four years' time.

Yet while digital television offers great opportunities for broadcasters, it also presents threats. More channels means the fragmentation of audiences and a more competitive advertising market.

This, together with the high cost of embracing digital technology, will push broadcasters to look for additional sources of revenues.

In Britain, for example, which is a little more than two months into the digital television era, pay-per-view and subscription-based channels have formed a significant part of the new channels launched by existing broadcasters.

Bear Stearns, the US-based investment bank, forecasts that digital services will drive the growth of pay television from 27 per cent of households to 56 per cent by 2006 in the UK.

"Lower subscription prices, the TV set replacement cycle and over-the-air distribution – the ubiquitous form of TV reception in Brit-

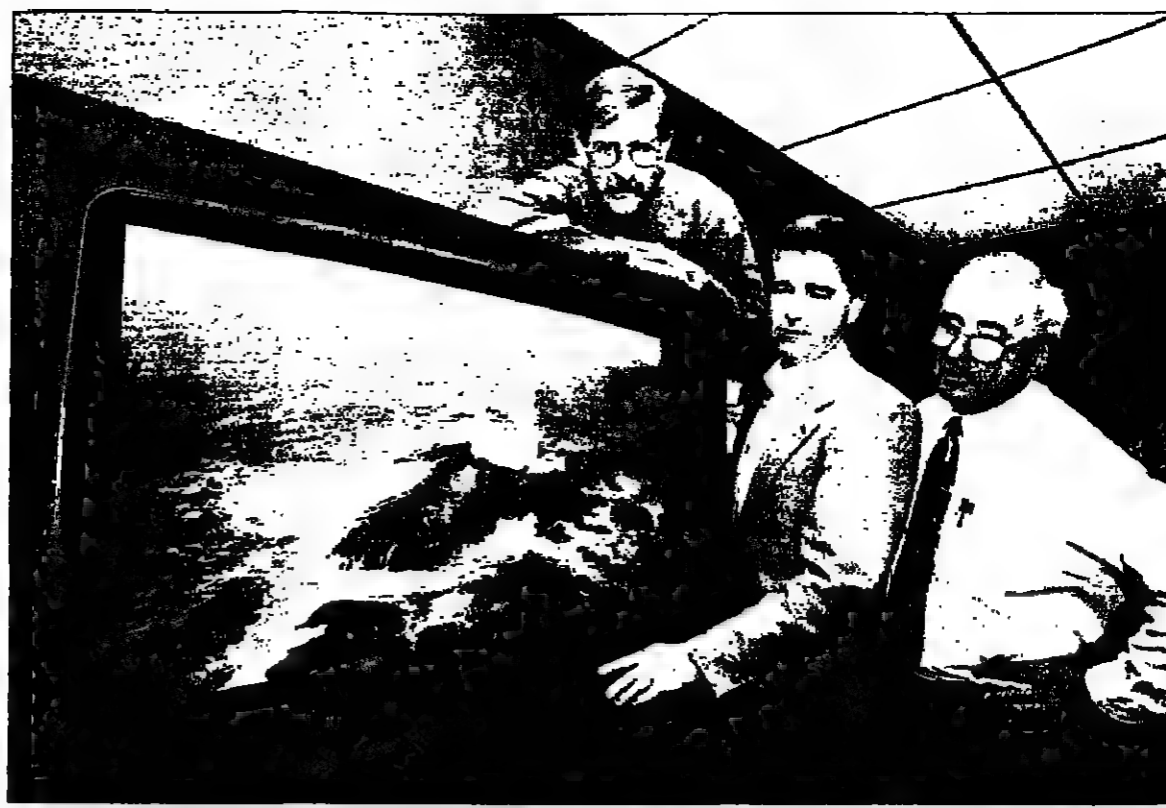
ish homes – are key facilitators of this growth," the bank concludes.

Costs to the consumer are also likely to fall rapidly to add the digital take-up. Bear Stearns predicts that interactive digital television sets will soon be no more than 10 per cent more expensive than ordinary analogue models. The gap is currently five-fold.

Meanwhile, set-top boxes, which are required to process the digital signals for analogue sets, are being subsidised by operators. Thus US consumers are paying under \$200 for models, while satellite operator BSkyB is offering free installation of its digital equipment.

While the path towards digital television penetration has some obvious comparisons with earlier technological developments, the way forward for interactivity is an untried model.

And although home banking and shopping will undoubtedly feature prominently in the next decade,



In the US, Thomson Consumer Electronics officials display the company's new movie-theatre-format picture tube at Thomson's centre in Lancaster, Pennsylvania. The company's engineers developed the digital, high-definition screen that is 30 per cent wider than a traditional TV and is claimed to be the largest direct-view screen in the world.

the question remains: through which medium will interactivity be conducted?

"Interactive television has been one of the industry's dreams for a long time," says Bill Bass, director of media and technology strategy at Forrester, the US-based IT consultancy and research group.

"The advent of digital has made convergence of the Internet and television a reality – but we believe full interactivity won't happen."

What will occur, according to Mr Bass, is "lazy interactivity", where there will be a partial integration between the television and the Internet of particular aspects of both media.

He quotes the example of television advertising as an area "primed for interactivity", where viewers could respond through their sets to a particular advertisement. Games shows are another example of an area likely to be a favourable platform for interactivity.

However, he believes that "the stuff that's good on the Internet will stay there."

Rather than pursuing integration, some of the biggest US media companies are viewing the Internet as

another but significant arm to their business.

The reason for this has been the development of "portal" sites. These are Internet sites which offer themselves as gateways to the web, but also have a wide variety of services and e-commerce opportunities available.

Portal sites such as Yahoo!, Excite and Infoseek have become global brands. This has been achieved by enticing visitors with their

content of online services and encouraging them to stay as long as possible.

This then enables the portals to charge more to advertisers and sponsors, as well as take a bigger cut of any e-commerce transactions.

The result has been the portals become the most sought after destinations on the Internet. Not surprisingly, the prospect of netting such large audiences has attracted much interest from the media industry.

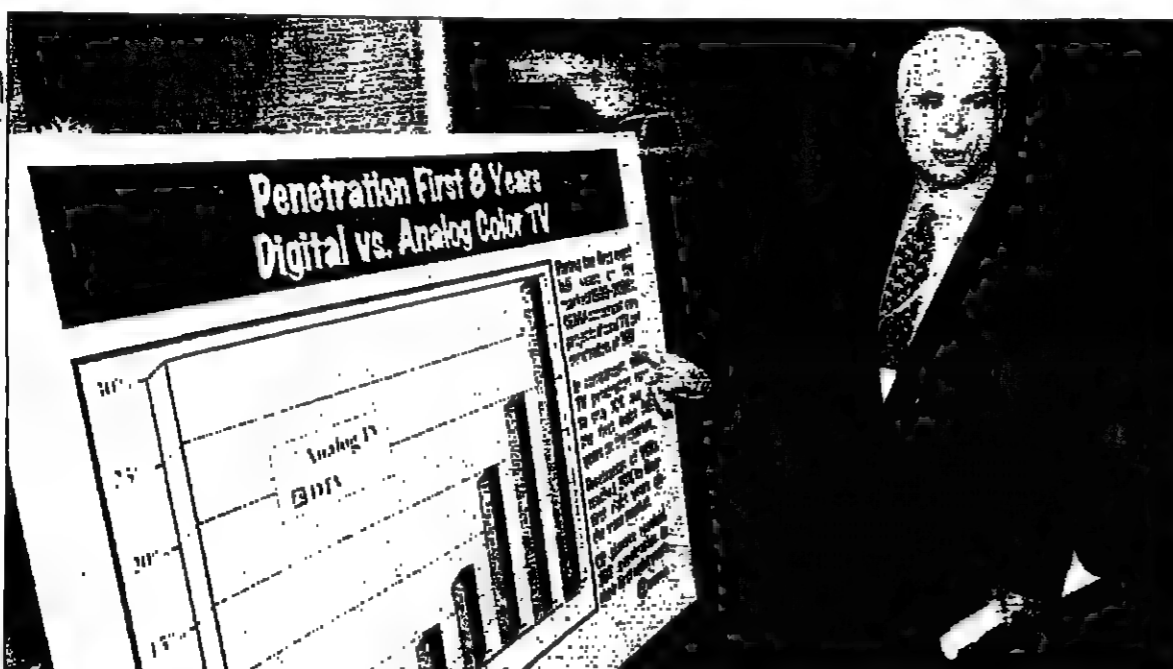
In the most significant move, Disney last year bought a 43 per cent stake in Infoseek, one of the leading Internet portal groups.

Disney is using Infoseek's experience to fashion its own portal, Go, which it will integrate into the rest of its business operations.

"In the old media world there was little point in integrating your assets," says Mr Bass. "In the digital age, having your business work together is vital."



Microsoft's Bill Gates, left, watches attentively as Steve Guggenheimer, a Microsoft product manager, gives an interactive TV demonstration at a cable industry convention in Atlanta, Georgia.



Senator John McCain, chairman of the US Senate Commerce Committee, asks a question about the growth of digital television as he examines one of the digital TV displays at a broadcasters' convention in Las Vegas.

CASE STUDY BERTELSMANN

Responding to the call of the Internet

With its decentralised structure, the German-based media group has to think hard about the best way to do business in the digital age, writes Frederick Stüdemann

Thomas Middelhoff, the newly installed chairman of Bertelsmann, is well aware of the central importance of information technology in the future development of the world's third biggest media company. By his own admission, Mr Middelhoff owes his promotion through the ranks at Bertelsmann to his understanding of computers, the Internet and the possibilities – and challenges – offered by electronic commerce.

Nearly four years ago, he persuaded reluctant Bertelsmann board members to take a minority stake in America Online – then just another fast-growing online service company – and set up a joint-venture with the US company in Europe.

The initial scepticism of his fellow board members was soon dispelled. As an investment, the AOL stake has given the German group a handsome return on its money as technology stocks have soared.

In strategic terms, the move opened the way for Bertelsmann to expand into new areas and upgrade its existing portfolio of printing, broadcasting and book and music publishing and club activities. By 2000, the group, which had sales of DM23bn (\$13.7bn) in 1997-98, expects half of its revenues to come from its electronic businesses. These range from traditional broadcasting activities to newer multi-media businesses, such as AOL, and also include the mixing of the new with the old in areas such as book retailing.

Mr Middelhoff sees the electronic delivery of content to subscribers or one-off customers as a logical next step.

For fiction and general interest books, he believes that the Internet will initially serve as a retailing platform with customers going online



Thomas Middelhoff, new chairman of Bertelsmann, is grepping the media opportunities offered by IT

to order books which are then delivered in physical format. However, he does not rule out direct, digitalised delivery of such books at some point in the future. Similar developments are expected in the music business.

Bertelsmann has been driven by companies such as Amazon.com of the US. But it is now seeking to catch up. Late last year, Bertelsmann bought a stake in a rival venture, Barnesandnoble.com, and is still working on the roll-out of an online book retailing service, called Books Online, for the European market.

Another area where IT is set to make a significant impact is the group's core book club division which is now being given a face-lift after years of lacklustre performance. Mr Middelhoff believes technology will play a key role in a new enhanced service in which subscribers would not just be able to buy books at discounted prices but could also be offered additional Bertelsmann services – such as subscriptions to AOL or pay-TV channels.

In broadcasting, the potential of technology in areas such as digital pay-TV has yet to be fully realised. Plans for a three-way digital broadcasting tie-up between OLT-Ufa, the European film and television group in which Bertelsmann owns a 40 per cent stake, Kirch, a big German media group, and Deutsche Telekom, the partially-privatised telecommunications giant, were blocked last year by the European Commission on competition grounds.

Relations between Bertelsmann and Kirch have also been strained in recent years, thus hampering any development at Premiere, a pay-TV channel in which both companies hold stakes. But it is not just in these, perhaps predictable, areas that technology is making an impact on the way Bertelsmann does business. Mr Middelhoff believes that no part of the group will be untouched by

technology. "The Internet will grow across our entire value chain," he says. As such, the development of a group-wide approach to the Internet, and in particular electronic commerce, is now "strategically important."

But implementing this will be difficult. Bertelsmann prides itself on a decentralised management culture arranged around 300 profit centres.

Communication between the various centres is sometimes close but also often non-existent.

The effects of decentralisation – which Bertelsmann considers a cornerstone of its success by encouraging managers to act as entrepreneurs and not just corporate executives working their way up a big hierarchy – can easily be seen in IT. There are 80 different electronic data programmes and 12 different e-mail systems in operation across the group.

Mr Middelhoff believes that one of the reasons Bertelsmann has found it difficult at times to respond quickly to technology is that it has not been able to fully exploit its resources.

"Amazon has one great advantage over us – they have one database," Bertelsmann's various subscription businesses, by contrast, have around 40m members but there are no links between the various units.

But he says Bertelsmann needs to be careful not to promote more decentralisation when developing a uniform strategy for the Internet. "Every part of the value chain will at some point follow its own Internet strategy – but at the moment we need co-ordination."

One impediment to the formulation of a common strategy has been the bureaucracy of such a big group as Bertelsmann. "We discuss who is responsible, while other start-ups just get on and do it."

According to Mr Middelhoff – who takes pride in the fact that the utilitarian corridors of Bertelsmann's corporate headquarters in the prime, provincial town of Gütersloh are now occasionally filled with young, shabbily-dressed technology geeks – such hindrances now lie in the past.

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ELECTRONIC SHOPPING by Penelope Ody

A revolution in retailing

Today's retailers no longer talk just of 'high street' or 'edge-of-town' - they talk of 'channels to market' which can include the World Wide Web, standalone touch-screen kiosks, interactive television and mobile telephones

Long ago, in technology terms at least, larger retail companies were preoccupied with electronic payment and point-of-sale systems, while only a few brave souls experimented with "multimedia" kiosks.

That was in the early 1980s. Today, however, technology is set to revolutionise the traditional high street, leading to a major reassessment of cost structures and marketing, as well as triggering new business alliances - as in the acquisition by Britain's WH Smith of the Internet Bookshop earlier this year.

Technology is certainly having an impact on shopping patterns - although sales are still a long way from early optimistic forecasts that "as much as 30 per cent" of all shopping could "go electronic" by the turn of

the century.

Forrester Research predicts that US on-line sales could reach \$108bn by 2003, while Datamonitor suggests \$4.97bn for western Europe by 2002 - well up on the estimated \$296m for 1996 but still a long way behind the more successful US market.

Part of this clear differential is being blamed on geography. US population densities are low and consumers must often drive a long way to their nearest shops, while Europe is much more crowded and neighbourhood shopping centres are still commonplace.

Ragnar Nilsson, chief information officer at Karstadt, the German retail group, says: "Europeans live so close together that it's often more convenient to go and see the item, rather than buy it via the Internet."

Many experts believe that tomorrow's successful retailers will need to take a "multi-channel" approach to trading, allowing customers to shop in both real and virtual worlds, with a strong presence in each. That applies equally well to companies starting from an electronic base as to those with their feet firmly in the real world.

"Retailers will have to offer multiple options to purchase," says Joanne Walter, vice president for future retailing with NCR, the US-based IT systems and data warehousing group. "Being just web or just real world will ultimately be limiting - all successful traders will eventually be in both channels, otherwise they'll be missing out on some segment of the market."

"That even applies to

Internet successes like Amazon.com. Book buyers like to browse in shops to touch-and-feel. If a book store is only on the web then - while customers will buy a certain percentage of their books that way - they'll still use real world locations for the rest."

Until now, electronic shopping has been dominated by the Internet which - at least in Europe - is still largely elitist, appealing to an affluent, male-dominated marketplace, and expensive (especially in countries where there is a charge for local telephone calls).

Although the web population is constantly changing, many mainstream retailers believe that - at least in the medium term - it will be only a niche market. For them, interactive television (ITV) looks like a more successful option. Iceland, the UK food retailer, is one of the first to sign for the new interactive Open-TV channel which will be launched shortly.

"The demographic profile for TV matches our customer profile exactly," says Malcolm Walker, Iceland's chairman. "We wouldn't expect to do any business on the Internet, although the media like it, while ITV is an obvious choice."

While Internet and ITV shopping options are currently quite separate, the technologies will gradually merge, with Internet access on the television via the likes of such services as web TV. Other domestic appliances may also enter the fray: NCR has already developed a prototype microwave oven with a touch screen and in-built PC for accessing the web from the kitchen.

"Bandwidth is the key," says Irving Wladawsky-Berger, general manager of IBM's Internet division. "Television broadcasting is a very cost effective distribution mechanism but we could well see ITV and Internet coming together in a single television set using some sort of split signal technique."

Within the next five years, Mr Wladawsky-Berger expects interactive voice response systems to provide

an easier interface than the conventional keyboard and mouse for accessing the Internet from the sofa. "I also think we'll see a great increase in web-enabled consumer appliances and that could encourage even more shopping opportunities."

While a web-enabled washing machine, for example, could automatically alert a service engineer when it needed fixing - much as with existing remote diagnostic systems on computer equipment - some sort of simplified web access by palm tops and smart telephones could provide an easy-to-use shopping option for consumers on the move.

Symbol Technologies already has a ball-point-pen-size bar-code reader for home use and believes that microchip-sized scanners and radio transmitters could in future be added to all sorts of home appliances. This would take the proverbial "trash can with its own e-mail address" which could scan discarded packages and automatically re-order the groceries a step nearer to reality.

Currently, a major problem for would-be e-shoppers is actually finding what they want to buy among the myriad web pages. One famous e-shopping tale tells of the

Eventually, the convenience factor will be a key incentive for many to shop in cyberspace

customer who entered "camera" into an Internet search engine to receive more than 2.6m matches and a list which included several Italian chambers (camera) of commerce.

Companies like Taxi Interactive, which launched an on-line "shopping assistant" in both the US and UK last October, are starting to address this problem. The Taxi application, which is downloaded free by consum-



British-born computer genius Tim Berners-Lee, 43, pioneer of the World Wide Web. He is director of the World Wide Web Consortium at the Massachusetts Institute of Technology. Last year he was the recipient of the MacArthur Fellowship, carrying a stipend of \$270,000 for his work on the Web

ers, provides a simple screen interface for accessing a pre-selected assortment of the best-known brands and retailers trading electronically.

Shoppers can then adapt this core selection to meet their personal needs and interests. The system provides a highly selective search engine which can be used to seek out best prices, deals and shopping options and then tabulates them on-screen for rapid comparison.

"In future," says Jonathan Hammond, Taxi's joint chief executive, "the system will become more intelligent so that it can make buying suggestions based on previous searches and shopping choices. At the moment, trying to find what you want to buy using a conventional search engine is like entering the void."

User-friendly interfaces will only be part of the story, however. There also has to be an added incentive for going electronic. This could be convenience, as with home delivery groceries or

(which they can decorate) and interacting with other virtual personas. Consumers have been signing up at the rate of 1,000 a month, although actual purchases are still a long way behind the socialising and information-seeking activities.

Developments such as these may become more common in future. A study of consumer behaviour on the Internet by UK researchers Phillips Tardiff, part of Phillips Business Information of the US, identified a potentially high-spending consumer group, labelled as "I'll be there", who enjoy shopping for its social dimension and who are likely to respond to offers which incorporate the "looking, touching, feeling, trying, buying and being sociable" aspects of a visit to the store.

For these buyers, shopping may need to be a forum activity where they can discuss purchases with friends - real or virtual. Deuxieme Monde may just be the start.



Shopping for software: computer enthusiasts buying Japanese language versions of Microsoft products in Tokyo's Akihabara electronics shopping district

MOBILE COMPUTING by Christopher Price

Packing a big punch into a small package

The big names of the IT world are battling for supremacy in the growing market for small, portable and even wearable devices to meet the needs of those on the move

The fact that portable computers will become smaller, cost less and become smarter is in little doubt. What is less clear, however, is which of the developments currently taking place will win out in what is becoming an overcrowded marketplace.

A wide range of products is contained within the portable computer market. At the lower end, in terms of cost and power, are the hand-held computers and organisers, such as those produced by Britain's Psion and 3Com of the US.

A step up in size are the mini-computers and sub-notebooks, harnessing greater power and more functionality, but losing the hand-held tag. Finally, there are the notebooks, which have become an integral part of most PC manufacturers' portfolios.

Alan Thompson, a director of Toshiba's PC division, the world's biggest portable PC supplier, says developments across the range of portable PCs are being driven by the need to "pack a bigger

punch into a smaller package."

It is not, however, all about miniaturising computers. "Portable users want robust, fully functional, reliable machines which are light but not necessarily small," says Mr Thompson. "Many also want full-size screens and keyboards."

Lighter, thinner and cheaper notebooks were much in evidence at the recent Comdex computer show in Las Vegas, as well as more new entrants to the dynamic marketplace.

There were also reports that the revitalised Apple Computer group would unveil its "WebMate" notebook early in the new year. Following on from its innovative iMac PC, the WebMate will be translucent, weigh less than four pounds and offer a variety of wireless communication options.

Wireless is the development seen as crucial to the next generation of portable computers by many in the industry. Again at Comdex, Toshiba displayed a new innovation in connectivity,

which enabled a personal computer to send an e-mail to a mobile phone using radio transmission.

"People want a single interface for their communications devices," says Mr Thompson. "We want to produce a portable PC which will sit and integrate with your desk PC, and which can then be used on the move but keeping you seamlessly connected to your office computer system."

Toshiba is part of the

One scenario is certain: users will be overwhelmed by choice in the future of mobile computing

Bluetooth consortium, which is developing standards to enable wireless devices to talk to each other. Mr Thompson says manufacturers involved in the project are only two years away from producing the first such enabled devices.

Another significant development is likely to be the

introduction, probably later this year, of the first hand-held devices to emerge from the Symbian partnership.

Symbian was formed last year by Psion, the UK hand-held computer group, and the mobile phone groups, Ericsson, Motorola and Nokia. It is using the operating system from Psion's computers as the basis for the development of a new generation of smart hand-held devices.

In particular, the potential for mobile phones equipped with such smart applications as e-mail, data transfer, enhanced memory and internet access, is seen as immense.

The formation of Symbian is also seen as a threat to Microsoft's hopes of getting its CE operating system adopted as the main standard in the emerging wireless market.

Janice Roberts, marketing director of 3Com and head of the Palm Pilot business, points out that while the Symbian developments are interesting, standards developments in the US are likely to be influential.

3Com is keen to have the operating system of the Palm Pilot, the biggest-selling hand-held computer in the world, adopted by mobile



Mobile police station: In Durham, North Carolina, a computerised vehicle serves as a mobile information centre. The 35ft long vehicle also has video and police data links and is intended for use in major incidents. Pictured centre is Durham's Police Chief Teresa Chambers

phone manufacturers as the basis of the next generation of wireless devices.

The Palm Pilot VII, which has just been launched in the US, has the capability to connect with the Internet for a limited application called "web clipping". This is a service provided by some 30 news and service organisations and which the user can access. 3Com has struck a deal with Qualcomm and Bell South to operate the system in parts of the US.

Other partnership agreements are expected, as are

going to want devices tailored to their own personal use." This is leading to the development of software agents to manage a user's various wireless devices.

IBM is hoping to introduce next year the prototype of a wearable PC into commercial trials. The 10-ounce device, which is about the same size as a personal stereo, incorporates a 233MHz processor, 32MB of storage and 64Mb of RAM.

It also has a microphone for using the voice recognition software it runs, and a

screen on a boom. Thus, with the computer clipped to a belt, and the screen set at eye-level, users can work hands-free. Mr Hester envisages the product could be suited to maintenance work, for example, or for people who prefer privacy when using a computer in public places.

Which of all these developments will succeed is impossible to predict. However, what is certain is that users will be overwhelmed by choice in the future of mobile computing.

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BUSINESS SOFTWARE DEVELOPMENT by Louise Kehoe

New IT systems bring benefits – and traumas

While many companies are eager to keep up with the latest software trends and applications, others are wary of the potential difficulties that could be involved

In the rapidly changing world of information technology, some of the most difficult changes for users to assimilate come in the form of new software. News that a commercial software developer is about to launch a new version of the programs used on your desktop or throughout your business is a mixed blessing.

While enhanced features and new functions may make new programs more useful, the time and costs involved in upgrading software, or switching to a new program, are a big disincentive. Another problem is the challenge of making new applications work together with older systems and software.

Then there is the issue of learning to use the new program – or training staff to use it. No wonder many computer users, whether individuals or companies, think long and hard before adopting new software.

For software developers, this is a serious challenge which, until recently, has not been widely addressed. It has always been assumed that computer users would flock to buy the latest version of a program and to a high degree the "what it or leave it" approach has served the software industry well.

Yet as IT users begin to question more closely the costs of upgrading software

and the complexity of IT systems, the industry is responding. The broad theme of reducing the complexity of computing, by making software easier to adapt, implement and integrate with existing systems, is likely to dominate the software industry over the next few years.

Microsoft, Bill Gates, chairman and chief executive, has made simplifying desktop software his top priority. Future plans include "save" or "delete" gestures, recognition that would enable computers to respond to the pod of a head or the wave of a hand, and – in the more immediate future – natural language processing that would allow users to ask questions or type commands in their own words.

Meanwhile, some of Microsoft's biggest competitors are proposing new models of computing that would shift the focus away from desktop software and the dominant "client-server" approach, toward networked computers. The principle behind networked computing is that users should be shielded from the complexities of information technology.

Rather than each desktop computer storing all of the software it uses, programs would reside on remote network server computers. Responsibility for IT services

and software would be placed in the hands of expert technicians running the servers.

As Scott McNeely, chairman and chief executive of Sun Microsystems, explains: "People should not have to know how computers work in order to use them. You don't have to know about the Hoover Dam to take a shower, or a nuclear power plant to use electricity. Why should computers be different?"

The computer industry winners of the 21st century will be "those who understand that most users are not computer geeks... like us," adds John McFarlane, president of Sun's Solaris software group. An outspoken critic of Microsoft, he declares that "Windows is already obsolete".

The notion of a desktop computer loaded with sophisticated software will give way to less complex "client" computers linked to bigger and more powerful servers, he predicts. Yet Sun and Oracle, which respectively garner most of their revenues from servers and server software, may be optimistic in predicting a radical change in the way computers are used.

Seldom do computer users throw out the systems and software they have already installed in favour of a new approach. More commonly,



A very different world in the City of London, long before the computer age, Bank of England messengers dash from bank on hearing of a fall in the bank rate. Today's complex IT systems may be faster, but they bring frequent headaches for users

the challenge is to bolt new systems to older "legacy" systems.

Thus, over the past year, there has been rapid growth in the emerging "application server" market, for software designed to link existing business computer systems with the latest Web applications, whether on the Internet or internal corporate networks. Application servers typically run on mid-sized computers that act as a "traffic cop" between personal computers linked to a network and the big mainframes or server computers that store a company's business records.

The application server receives requests for information from desktop computers and gathers the answers to those queries from the back-end machines, translating them into formats that can be presented on a PC.

Despite their unglamorous

middleman role, application servers are a hotbed of software industry activity, with dozens of companies vying for a leading role in the emerging field. Forrester Research, a US market research group, expects application servers to account for revenues of over \$2bn by 2002, up from about \$400m last year. Still, the complexity of integrating old and new software represents a big challenge for IT users.

Outsourcing

Another solution is to outsource the whole tortuous process to a third party. Outsourcing is already a well established trend among big businesses. Moving to focus on their "core competences", many large companies have turned over management of their IT systems to experts in the field.

In the future, different

forms of outsourcing may provide smaller businesses with the ability to keep on the cutting edge of IT, without having to develop in-house expertise. Oracle is spearheading this trend with its new "Business Online" services, which are scheduled to begin this month.

Rather than purchasing and managing expensive computer equipment and software, small businesses will be able to subscribe to the Business Online services, dial up the Oracle computer systems via the Internet and make use of the sophisticated software applications stored on those computers.

"It's crazy to have a [Microsoft Windows] NT Server, a 'mini-mainframe', at every doctor's office in the country," Mr Ellison says. Instead, doctors, retailers and other small businesses should outsource their IT systems, using software on a

"pay per use" basis, he maintains.

However, getting rid of the headaches of complex computing also means placing critical functions, such as business records and billing systems, in the hands of a third party. In an era of increasing concern about the privacy and security of computer records, this might prove to be a barrier to the growth of the services that Oracle is planning.

Computer users are eager for easier-to-use computer systems and the software industry's new emphasis on simplicity is broadly welcomed. Yet the rapid growth of information technology spending over the past few years seems likely to backfire on computer and software companies in the new millennium as users settle for "good enough" systems and software, rather than struggling to keep pace with the very latest IT products.

PHARMACEUTICALS AND BIOTECHNOLOGY by Nuala Moran

A crucial role for IT in drug research

An explosion of clinical research data brings with it the need for knowledge management, a need which is being met by specialist software companies

As the next century approaches, the pharmaceutical and biotechnology industry is dependent on one to more than any other to speed the process of drug discovery and development – information technology. This may seem odd, given a wealth of new research technologies that have arrived in the past decade, ranging from high-throughput screening, proteomics (the study of protein structures) and genomics.

In the 1990s, the industry has invested heavily in these technologies, each of which generates masses of data. But to extract the true value from this, it must be integrated, managed and organised.

This requirement has prompted the development of a specialised form of knowledge management known as bioinformatics. While sectors such as financial services and retail are

familiar with the problem of information overload, pharmaceutical and biotechnology companies face the challenge of integrating public domain and proprietary data such as gene sequences, chemical libraries, protein structures and clinical data.

Extracting value involves more than just looking for patterns, as in data mining; it means being able to link and synthesise disparate data sets and understand the significance of the combinations.

"The amount of data in the pharmaceutical industry is just exploding," says Mike Haydock, a pharmaceutical industry consultant at IBM.

"This is producing some pretty unwieldy databases which are hard to search through efficiently. The difficulty is compounded by the fact that you are not just dealing with your own databases; many are publicly owned."

What the industry needs from bioinformatics is a framework for integrating and storing information, and tools such as pattern matching and data visualisation to put meaning into the data. This requirement is spurring in-house development efforts.

Thomas Bumol, executive director for research technology (biology) at Eli Lilly, the US pharmaceutical group, is responsible for helping the research laboratories take advantage of the explosion of data associated with the Human Genome Programme and the sequencing of the genomes of other organisms.

The Human Genome project (see also report, below) is a publicly-funded effort to determine the sequence of the 3bn chemical units, or bases, that make up the human genetic code. "We are making a serious commitment to harnessing sequence data for two primary purposes – to find new targets for drug discovery and to find novel therapeutic proteins candidates," says Mr Bumol.

The company is bringing together proprietary and public databases to create its own internal databases and providing desktop tools, based on technologies, including artificial intelligence and neural networks, to mine the databases.

Sheldon Ort, Eli Lilly's information officer for IT, discovery and research, says that over the past three years, its investment in bioinformatics has grown exponentially. "This is not

just in terms of hardware and software but also on the people side."

The emergence of bioinformatics as a discipline is also prompting the start-up of specialist software and services companies. One of the leading bioinformatics services companies is the genomics specialist Incyte Pharmaceuticals, in Palo Alto, California, which provides databases and genomic data management software enabling the pharmaceutical industry to identify new targets and pathways for drug discovery and development.

Other companies such as Perkin Elmer and Oxford Molecular specialise in providing software that makes it possible to link up different types of data from public and private sources. In Europe, one of the leading bioinformatics services providers is Lion Bioscience, based in Heidelberg, Germany. Its main product is bioScout, an integrated bioinformatics platform

which includes functions such as gene sequence annotation, gene function prediction and three-dimensional homology structure modelling.

Last year saw the launch of two such companies in the UK: Synomics, based in Cambridge, and Inpharmatica in London. Synomics, which styles itself "a pharmaceutical research informatics company", says it will provide an integrated and flexible research information management system that operates throughout the research enterprise and manages data flow across

three-dimensional structures of the proteins for which they code, then through analysis and classifications based on protein family relationships determines their probable functions.

Ken Powell the chief executive, said this was "not a sudden new organisation". It was based on 20 years of research on predicting protein structure and function from sequence data. "The new ingredient is the vast volume of genomic data which is now available in both public and private databases, and the fact that very few pharmaceutical or biotechnology companies have access to specialist bioinformatics skills needed to make sense and extract value from this data."

"A lot of companies are sitting on valuable data which they are not able to handle effectively. We will make the data manageable and apply it to drug discovery."

the entire drug discovery process.

At its launch, Steve Gardner, the chief executive, said competitive pressures within the pharmaceutical industry had led to major changes in the way drug research was done. "New drug discovery techniques are generating much more research data, which makes effective use of information more important than ever before."

Inpharmatica aims to identify novel drug targets by integrating computer modelling techniques with genomic data. It will apply modelling techniques to gene sequences, to recognise and predict the

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Instead of the R&D department churning out drug compounds, there must be a pull from the market. "There is a need to integrate processes across the organisation. New products should arise as a result of combining commercial insight with clinical data and research tools such as genomics."

In future, he says, companies will need web-enabled knowledge management structures and processes. "This will enable them to select leads and design clinical protocols from a flood of potential new molecules, target populations and strategic alliances."

Mr Ort agrees. "The new genetic technologies are not just generating pre-clinical data sets, they are also leading to a revolution in clinical research and fuelling the feedback loop to discovery." In the next 10 years, pharmacogenomics – showing how the different genetic make-up of individuals influences the efficacy of drugs – will lead to customised and safer treatments.

being determined in the Human Genome Project, an international effort to sequence and publish the entire genetic code of humans by 2002.

In December, scientists on the project acknowledged that it was not sufficient just to churn out sequence data. Thus, they announced plans to invest in the development of bioinformatics tools for analysing the data and in the training of bioinformatics experts.

Nuala Moran

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TELECOMMUNICATION SERVICES by Alan Cane

Internet represents both a threat and an opportunity

Telecommunications operators and equipment manufacturers will have to maintain a portfolio of products and services to compete in tomorrow's data-centric telecoms environment

The unprecedented state of mergers and acquisitions which has characterised the telecommunications industry over the past two years has its roots principally in two phenomena. The first is the liberalisation of the majority of the world's telecoms markets which has brought competition to most of them for the first time in more than 100 years. Secondly, the explosive growth of the Internet has drastically increased the volume of data travelling across the global telecoms network and forced operators to reconsider their basic transmission strategies.

Together, they are forcing a third phenomenon: convergence or the pulling down of the technical and commercial barriers which hold telecoms and computing apart. Some would include the creation of content - both information and entertainment - within the definition of convergence, although most telecoms operators insist they are interested only in the transmission of information rather than setting up in competition with Hollywood.

The concept of convergence is not new. Ever since it became clear that every kind of information, when converted into binary digits - the language of computers - could be transmitted and processed in the same way, the expectation has been that the two sectors would meld together. Cultural and technical differences have for most of this century prevented any such marriage.

Today, the advent of low cost personal computers, which converted the Internet overnight into a service for the mass market, has served to bring convergence closer than ever before.

It will not, however, bring benefits for either manufacturers or operators automatically. David Edmonds, director general of the UK Office of Telecommunications, introduced a degree of scepticism when he told a conference last year: "I am for convergence, but not for its own sake. Convergence has the possibility of delivering new, cost effective telecoms services, as well as existing services, cheaper and better. To the extent that it fulfils that promise, I am for it."

The manufacturing and operating sides of the business, have no option but to address the question. Telecoms manufacturers, for example, are finding that revenues from traditional switching systems are in decline as operators look for equipment more suited to handling increasing volumes of data. Ericsson, the Swedish manufacturer, for example, saw its shares fall by a fifth last month after reporting that sales of wireline switching equipment were weakening.

A response for traditional telecoms manufacturers has been to seek skills and experience in data communications, chiefly through acquisition. Nortel, the large Canadian manufacturer, for example, bought Bay Networks, a Californian data communications manufacturer for around \$8bn in the middle of the year.

Alcatel, the French group, acquired DSC Communications, a US digital switching company, for \$4.1bn. Lucent Technologies, the world's largest telecoms manufacturer, paid \$117m for Lammec, an Israeli supplier of net-

working equipment. The hard fact is that long distance networks built to carry data can deliver calls at up to 70 per cent less cost than conventional networks.

There are two reasons. Data switched of the kind made by Cisco or 3Com cost less and have better performance than conventional central office switches. Also, the capacity of fibre optic networks has increased a thousandfold in the past decade.

Telephony, the authoritive US publication, cites research which shows that succeeding generations of switching technology cut the price/performance doubling time by about half. In other words, conventional switch technology doubles its performance for the same price every 80 months.

Switches using ATM (asynchronous transfer mode) technology take only 40 months while packet switches and routers expressly designed to handle data, take only 20 months to double their performance.

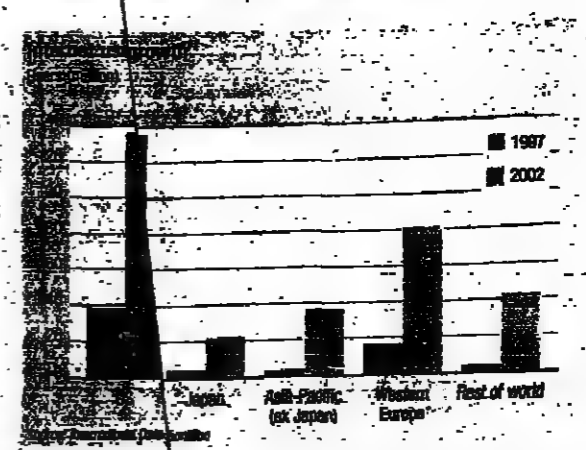
Telecoms operators are forming unorthodox alliances to stay ahead of the "datawave". In the most spectacular, old foes AT&T and British Telecommunications agreed last year to work together to create a

global data network based on Internet technology. Cable and Wireless of the UK moved quickly to acquire the Internet assets of MCI when regulators demanded their disposal as the price for agreeing the MCI/WorldCom merger. The deal, costing C&W about \$1bn, catapulted it into the front rank of Internet backbone suppliers.

The Internet represents both a threat and an opportunity to conventional operators. Their rigid structures and comparative unfamiliarity with the technology means that other, more agile players could steal the market from them.

Voice-over-the-Internet, a way of sending voice calls at low cost using data technology, will certainly cause a decline in revenues in the next few years.

On the other hand, as conventional voice telephony moves to commodity pricing, they will be dependent on



the Internet another data systems for its higher value added services to maintain revenue.

A number of operators including AT&T, Deutsche Telekom and Sonet of Finland are already experimenting with voice over the Internet. According to Margaret Hopkins of the U.K. consultancy Analysys: "Although the market is relatively small, it is growing rapidly. The growth is being driven by opportunities for voice arbitrage and is very specific to particular routes. It is particularly successful on routes to countries which have not yet opened their markets to competition."

"On routes where there is strong competition at present, capacity, Internet telephony cannot compete."

The principal inference from all of these developments is that operators and manufacturers alike will have to maintain a portfolio of products and services to compete in tomorrow's data-centric telecoms environment. It will not be enough to dominate a particular niche. Success will depend on a comprehensive understanding of market developments and the will and agility to colonise new and unfamiliar areas.

As the charts (below) indicate, global teledensity (the number of phone lines per 100 people) varies greatly and is directly related to income. With 60n people on the globe, there are still only 700m telephone lines, but this figure will rise to nearly 2.5bn by 2002.



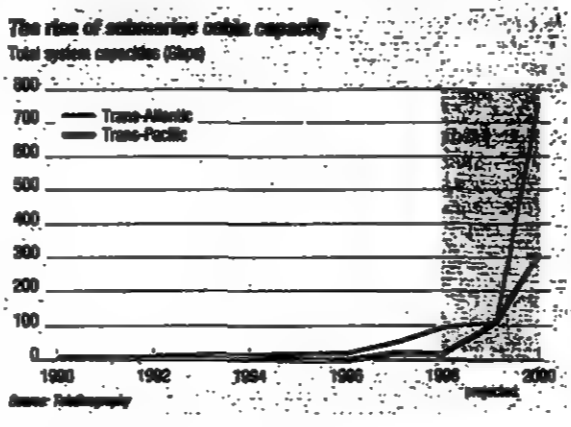
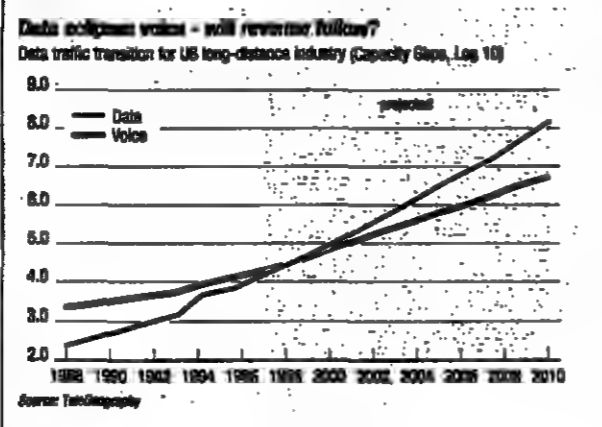
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TELECOMMUNICATIONS SUPPLIER PROFILE MCI WORLD COM

US-based operator makes an aggressive dash for growth

MCI WorldCom's turnover exceeds \$30bn. It has 75,000 employees and operates a 45,000-mile fibre optic network in the US and a 2,000-mile network in Europe

Less than five years ago, WorldCom was a little-known, US-based telecommunications operator trailing a distant fourth behind its domestic rivals, Sprint, MCI and the industry colossus AT&T.

Today, following the successful completion of the acquisition of MCI last year, WorldCom is the second largest long distance carrier in the US with direct connections to more than 33,000 office buildings.

It boasts a market capitalisation of more than \$100bn, enough to threaten that of AT&T, is building what it claims will be the first pan-European network combining both local and long-distance elements and is, analysts say, the company most likely to succeed in the new, liberalised telecoms market. Jack Grubman, Salomon Smith Barney's top telecoms analyst, noted recently in justifying predictions of a doubling of the share price to \$80-\$90 by the end of the year: "There are few, if any, companies anywhere that are as large as WorldCom, that have WorldCom's growth potential and the visibility WorldCom has for continuation of top-line growth."

The company had, he said, the best strategic position in the industry. "We believe WorldCom remains the 'must own' growth stock in anyone's portfolio". (Salomon Smith Barney was adviser to WorldCom on its purchase of MCI.)

Two phenomena have combined to help catapult MCI WorldCom, as it is now known, into the front rank of international operators. One was the opening to competition of most of the world's major telecoms markets. The other is the spectacular growth of the Internet, which played to the strengths of carriers with sophisticated networks capable of carrying data traffic efficiently.

MCI WorldCom is both fiercely competitive and the

operator of one of the world's most advanced data networks. The company's early years were marked by dramatic growth achieved through a frantic series of mergers and acquisitions.

The pace has not slackened. John Sidgmore, the company's chief operations officer, said it had made 68 acquisitions in four years.

The most spectacular was snatching MCI from under the nose of British

Telecommunications in 1997 with a buccaneering, \$37bn all-paper bid for the US long distance operator, a world record at the time.

It had earlier bought MFS, a US operator with a significant interest in Europe. MFS specialised in constructing fibre rings around major business centres giving it direct access to potentially lucrative business customers.

WorldCom's aggressive dash for growth raises a number of interesting points. First, it was able to afford to make so many acquisitions in such a short time because of the astonishingly high value

which telecoms stocks have enjoyed in the US over the past few years. This has made it easier for US players to make share-based acquisitions overseas than vice-versa.

Second, it underlines the importance of ownership of assets in today's competitive environment. WorldCom has sought out companies to acquire which, like MFS, own their own infrastructure.

Mr Sidgmore explains that companies which own their own networks enjoy both lower costs, because there are no interconnection fees to pay, and higher reliability. Quality can be rigorously managed because calls are not "handed-off" to other operators. New products can be introduced faster because there is no need to move at the speed of others' technological development.

"We like to control all the wires," Mr Sidgmore says.

It is also a significant player in the Internet business through its ownership of UUNET, a leading service provider. Satisfying the regulatory requirement for the completion of the MCI acquisition meant, however, disposing of MCI's extensive Internet interests to Cable and Wireless of the UK.

The power behind MCI WorldCom's inexorable rise is Bernie Ebbers, its colourful president and chief executive. It turns over more than \$30bn annually, has 75,000 employees and operates a 45,000-mile fibre optic network in the US and a 2,000-mile network in Europe.

Its other international interests include a controlling interest in Embratel, the only nationwide network in Brazil. It is building a digital network to link business centres throughout Latin America in conjunction with Telefonos Internacionales, the international arm of the Spanish telecoms group. It was the first foreign-owned telecoms company in Japan to offer voice and data services over a wholly-owned network in



Bernie Ebbers, president and chief executive - and the power behind MCI WorldCom's inexorable rise

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Tokyo. It is half-owner with C&W of the Gemini transatlantic submarine cable which went into service last year. All of this supports analysts' contention that it is the only operator which owns US local and long-distance assets, undersea cable assets, a high capacity Internet backbone and international assets.

Its revenues are growing at about 20 per cent a year and it has low debt. Many experts believe that it is the international player best equipped to take advantage of the huge and growing demand for data and Internet protocol-based services.

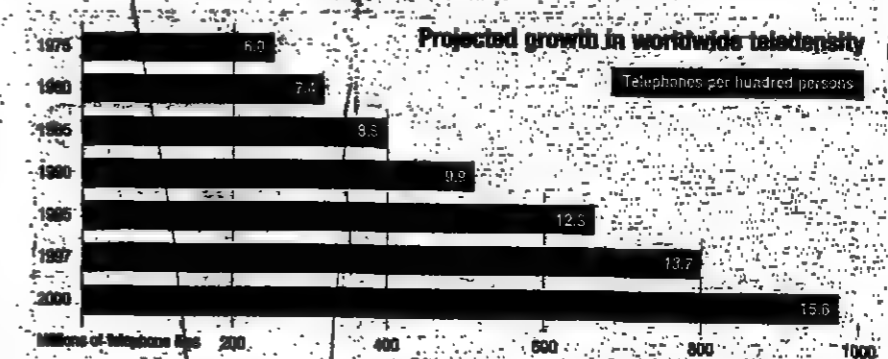
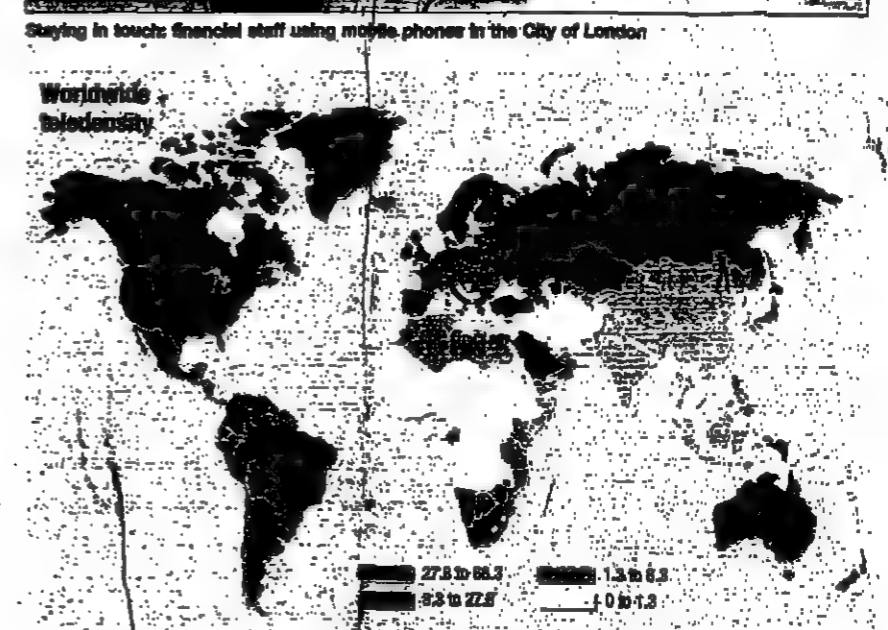
Mr Grubman of Salomon argues that the key to success for an international carrier is to be able to serve multinational customers with cross-border services. "Considering that WorldCom has 4,000 city network rings worldwide and network facilities that cover two-thirds of global telecoms traffic, nobody can capture more cross-border traffic than WorldCom," he enthuses.

There are question marks, however, over the company's ability to manage its growth. "We have to learn how to remain agile," says Mr Sidgmore. "We want to be the world's largest small company".

Quality of execution is, of course, the key. Mr Ebbers has proved a daring and opportunistic deal-maker, but he has never run an organisation the size of MCI and WorldCom combined. It remains to be seen, for example, whether the cultural differences between the two companies can be smoothed away.

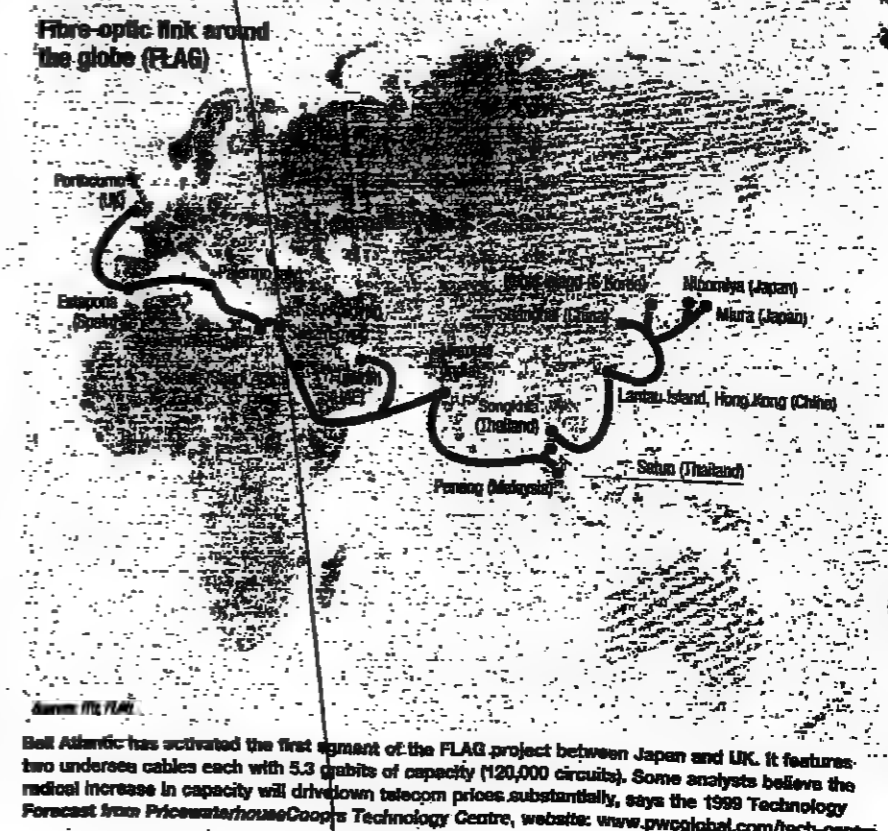
Operating synergies of \$2.5bn are expected in 1999, increasing to \$5.6bn by 2002 with capital expenditure savings of \$2bn in 1999 and beyond. Whether management synergies can also be realised will be better understood in the early years of the next millennium.

Alan Cane



How teledensity is directly related to income

Part of the world	1998 teledensity
Developed	0.07
Low-income nations (excluding China)	1.2
All low-income nations	2.4
All developing nations	5.1
All developed nations	54.6
Median	88.0



مكتبة الأمل

LAUNCH OF THE EURO

Currency debut almost glitch-free

After a frenetic race to ensure that computer systems were able to cope with the euro, Europe's new single currency was launched with fanfares at the start of the year.

In London, some 30,000 City employees passed up their New Year celebrations to convert securities and bank accounts into euros.

But although there were no major disasters, a few technical glitches did occur. One concerned Target, the European Central bank's system for clearing high value payments. Due to problems in the Portuguese payments system, there were delays of more than an hour on some days in closing Target. But

bankers said these delays had caused no significant problems. A few other errors were reported in foreign exchange settlement and securities custody.

Some fund managers were concerned about the settlement process for early trades carried out in euros. ECB officials said the Target delays were not caused by problems in the system itself, but some banks had experienced problems with wrongly routed or mishandled orders.

Target links the high value payments of all 15 EU countries, so operations at the centre can be held up by glitches in national systems.



Most banks had a trouble-free start for the euro. Above: bank customers in Milan, Italy, fill out forms next to a poster reading "euro è ora" (euro, it's now). Although euro banknotes and coins will not be in use before 2002, citizens of 11 European countries adopting the euro can have their bank accounts in euros and use credit cards to buy goods in the new currency.

Rivals mount new threat to Windows

Oracle, the software company, is enlisting Sun Microsystems in its bid to compete with Microsoft, writes George Black

Oracle, the world's leading database vendor, is joining forces with Sun Microsystems, the workstation manufacturer, in its challenge to the Windows operating system of rival Microsoft. The two US companies have confirmed that they intend to develop new software which will compete directly with Windows.

The joint venture is expected to centre on the fusion of Oracle's database system, by far the most widely used in the corporate market, with Sun's Solaris product, a version of Unix, the most popular corporate operating system. Both companies will have the right to re-sell the resulting software as a single product.

Oracle will also try to negotiate licensing deals with other companies to sell the product. Oracle and Sun say they will launch the first fruits of their collaboration early this year.

The new operating environment is expected to use Internet browser software similar to Microsoft's Internet Explorer and Netscape's Navigator to replace Windows at the user end of the system.

Windows at present has more than 90 per cent of the market in personal computer operating systems, although a much smaller share in the market for operating systems of more powerful

machines and networks, where Unix and other older systems still predominate. However, Microsoft's Windows NT product is rapidly gaining market share against Unix, Novell's NetWare and the rest.

Oracle and Sun fear that NT may in a few years gain the same dominant status in the corporate server market as Windows has on the world's desktops. It is this

fear that has preoccupied Oracle over the past couple of years and has driven it into the alliance with Sun to produce a radical alternative.

The dominance of Windows is at the heart of the anti-trust case brought by the US government and a number of US states against Microsoft.

Paradoxically, the marketing of a new Oracle/Solaris product could weaken the case that it has become impossible to compete with Windows in the market.

Sun has independently taken action to try to reduce Microsoft's dominance by announcing that it will give away its Java software free

of charge to software developers. At the same time, it said it would allow other companies to manage part of the development of the language, which is seen as crucial to writing programs for the Internet and to developing electronic commerce.

Sun had been widely criticised for being slow to develop the language, which it invented and still owns.

It appears now to have responded to pressure to open up Java by licensing it to developers to encourage more rapid development and create a "pure" standard independent of Microsoft. Microsoft markets its own version of Java, linked to Windows.

Government witnesses are expected to conclude giving their evidence in the anti-trust suit against Microsoft this month. The case has resumed after a break for Christmas and New Year. Microsoft has argued strongly that the take-over of its browser rival Netscape by America Online, the leading Internet services provider, undermines the case against it.

South Carolina has withdrawn from the suit because of that deal. Judge Thomas Penfield Jackson acknowledged that the deal marked a "significant change" in the market. But government lawyers have denied that it affects their case.

UK WHITE PAPER

Backing for e-commerce

The UK government has committed itself to creating a knowledge-based economy and spreading electronic commerce. In a white paper on competitiveness and a proposal for an electronic commerce bill announced in the Queen's speech to parliament, the government has marked a clear shift from its predecessor in promising a more interventionist stance aimed at modernising the country through the use of IT.

The competitiveness white paper stressed that rapid developments in information and communications technology were turning know-

ledge into the most important factor in economic growth. Britain was catching up with its competitors in this area, it claimed.

To accelerate the process it was necessary to stimulate those industries and encourage consumers to be more receptive to their products and services. The electronic commerce bill will allow digital signatures to be accepted as equivalent to signatures on paper and appoint "trusted third parties" to underwrite digital signatures as well as holding the keys to encryption systems.

Both of these proposals are

likely to be extremely controversial. The first will be criticised because the best method of legitimising digital signatures is still hotly disputed among lawyers. The second has already been attacked by opponents who say that the government is seeking to retain control over encryption, disregarding the best interests of industry, which would like a free market in encryption products.

The government says it is prepared to consult industry over the details of the bill, but is unlikely to give up its position that encryption must be controlled. Licen-

sing of systems is to be voluntary, but unlicensed systems will not have the same legal force as licensed ones, under the government's proposal.

There will, therefore, be strong pressure for electronic traders to use licensed systems. In the US, an official report on Internet commerce launched by President Clinton emphasised that the Internet should remain largely self-regulated, but promised limited government measures to boost the growth of electronic commerce.

E-commerce report: page 2

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YEAR 2000

Small businesses ignore date issue

Just over half of British companies with between 10 and 250 staff and three-quarters of smaller ones have so far failed to act on the so-called millennium computer "bomb". This is revealed in a review of the country's readiness for the computer-date changeover, one year ahead of the moment of truth, by the government taskforce Action 2000.

The review is generally optimistic, stating that key public services are "largely ready" and 90 per cent of large firms are on course to be ready to cope with the date issue. But small and medium-sized businesses remain "worryingly behind", which causes concern for the larger companies they supply.

Don Cruickshank, Action 2000's chairman, said he was especially concerned about

these smaller businesses, adding that they needed more help from their large customers. Action 2000's managing director, Gwyneth Flower, said some companies thought they had plenty of time left, others believed a simple solution would suddenly appear, and a further group thought the problem had been over-stated. "They are wrong on all counts," she said.

Mr Cruickshank referred to a "tremendous spirit of behind-the-scenes collaboration" between big companies, especially those responsible for public services. "Rivalries, secrecy and competition have been set aside in a common cause."

This month, Action 2000 will make more detailed statements on the preparations in the power, telecommunications, finance, transport and water industries.

Vodafone launches bid for AirTouch

The rapidly changing telecoms sector is set for a further shake-up with UK-based Vodafone's proposal to merge with AirTouch in a deal valuing the US-based cellular phone company at some \$58bn.

The move was aimed at putting Bell Atlantic, the US regional telecoms operating company, out of the race. Bell Atlantic has been preparing a bid for AirTouch worth some \$45bn. Both companies have been in talks, but had yet to fix terms for a deal at the time of Vodafone's offer.

The success of Vodafone, which has grown rapidly since its formation 15 years ago - it is one of the top 10 UK companies, measured by market capitalisation - would create the world's largest mobile phone group.

Vodafone aims to structure the deal as a merger of equals, although the terms could change as negotiations progress. The announcement of the deal triggered off a market research company. This month, Action 2000 will make more detailed statements on the preparations in the power, telecommunications, finance, transport and water industries.

RESEARCH DIGEST

Optimism in the IT sector

Executives in high technology businesses are more optimistic about prospects for their own companies and the industry than for the worldwide economy, says a PricewaterhouseCoopers survey.

The average growth in the industry expected next year by the 376 executives questioned was 11.5 per cent, but they expected their own companies to grow by 25.2 per cent and the economy as a whole by only 2.7 per cent.

World market for personal computers up 12 per cent

The worldwide personal computer market is expected to show growth of 13.2 per cent in the fourth quarter of 1998 on the same quarter the previous year, according to International Data Corporation. This reflects the strength of the US and western European economies, as well as a return to growth in Asia Pacific and Japan. For 1998 as a whole, the PC market grew around 11 per cent and this year is expected to grow another 12.8 per cent.

Smaller companies will need to invest more in IT

Europe's top 500 buyers spent 4.2 per cent less on IT systems in 1998, according to a study by Spikes Cavell, the market research company. However, total spending on IT was up by around 8 per cent and the researchers forecast that it will grow another 8 per cent this year. The figures suggest that fear of recession is having some influence on larger companies' spending plans, but smaller ones may still have to invest much more to tackle the year 2000 and euro issues.

Better management data sought

The quest for better management information will be the main reason for upgrading systems in 1999, reports consultancy Tate Bramall. The survey was conducted among 829 British finance and business executives, 64 per cent of whom gave better strategic information as their main objective. The need to achieve year 2000 compliance as well as euro compliance was stated as the main reason for upgrading by 47 per cent.

Information burden eases

Concern about "information overload" has diminished as people have begun to learn how to cope with it, says a study by Reuters, the international news and information supplier.

Only 42 per cent of managers now believe it is a problem, compared to 86 per cent the year before last. But in Hong Kong, 83 per cent said the overload caused their personal relationships to suffer, compared to a world average of 40 per cent.

In eastern Europe, many managers say they still do not have enough business information.

Systems market buoyant

The distributed systems management market is set to grow from \$19.5bn this year to \$27.9bn in 2000, forecast analysts at Ovum. The improvement in service level management tools is good for in-house IT departments, which are struggling to prove to senior managers that they can cope with the job better than outsourcing providers, say researchers. New tools will enable them to demonstrate the contribution that IT makes to the business.

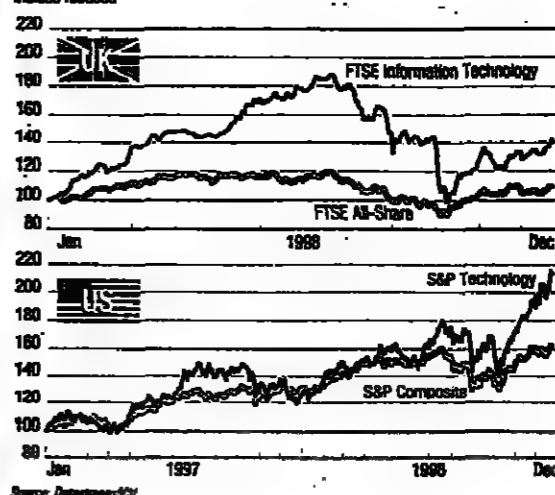
Asian demand will rebound

The Asia-Pacific region is likely to stage a comeback in demand for information technology products this year, according to analysts at Gartner Group's Dataquest subsidiary. Personal computer end-user revenues from the region will grow by 18 per cent to around \$18bn and server revenue will rise 6 per cent to \$3.2bn, it says. Computer printer sales are likely to rise 6.5 per cent to \$2.8bn. Dataquest said this would mark a recovery from the 1998 low figures, caused by the Asian financial crisis.

IT spending not clearly evaluated

Most companies admit they carry out no evaluation of their share of Britain's £28bn annual expenditure on information technology, says a report by the consultancy, CEC Europe. Two-thirds of companies reported that they had no process by which they could satisfactorily measure the return on their IT investment. Yet 98 per cent claimed their IT strategy was in tune with the company's business plan. The report was compiled on the basis of responses by 105 senior decision makers across several industries.

How high tech sectors outperform indices released



THE MONTH IN BRIEF

IBM sells data network

AT&T, the US telecommunications operator, has bought IBM's data network for the unexpectedly high price of \$5.5bn. The deal provides AT&T with a global data infrastructure, a huge base of corporate customers and more than a million individual Internet users. The sale is accompanied by a cross-outsourcing arrangement, whereby AT&T will provide IBM with network services and IBM will run many of AT&T's core computer systems.

Japan setback for SAP

SAP, the German software group, unsettled the stock market by revealing that sales problems in Japan would leave 1998 profits lower than expected. It said profits would show overall growth of around 15 per cent, well down on its previous estimate of a 30-35 per cent pre-tax increase. Results were also disappointing in Russia. Total sales were 40 per cent higher at DM8.4bn (\$4.9bn), with expected growth this year of 20-25 per cent.

Sema wins Olympics contract

Sema, the Anglo-French computing services company, has won a high-profile contract with an estimated value of \$300m to run the systems for the Olympic Games from 2001 to 2008. This followed IBM's decision to pull out of supplying the Olympics. Sema will take charge of the 2000 games in Sydney, the 2002 winter games in Salt Lake City, the 2004 games in Athens and the 2006 and 2008 events.

Siemens and 3Com joint venture

Siemens, the German electronics and electrical group, and 3Com, the US network equipment maker, are to form a \$100m joint venture to develop systems for sending voice phone calls across data networks. The technology is expected to be adopted by call centres for connections to Internet sites and for videoconferencing between personal computers. The market for such systems is expected to grow to \$4bn over the next three years.

Cisco buys router company

Cisco, the leading network equipment manufacturer, is buying Pipelink, a developer of routers that can send voice and data over telephone lines and the Internet. Pipelink is a privately held company in which Cisco has had a minority stake since 1997. Cisco said the \$126m acquisition would help it to supply telecommunications operators with products for integrated voice and data transmission.

Thomson stakes sold

Four of the top international computing and telecommunications companies - Alcatel, Microsoft, DirectTV and NEC - have each bought 7.5 per cent stakes in the French electronics group Thomson Multimedia. Analysts say the company could be floated this year, but the future of the organisation depends on the French government's willingness to reduce its majority stake.

Scottish deal for Novell

Novell, the networking systems company, is buying a \$1m minority stake in Edinburgh-based Orbital Software, an Internet search specialist. It is the first investment by Novell outside the US. Orbital was set up in 1995 by two former academics from Heriot-Watt University in Edinburgh. Its product, called Persona Server, is already offered with Novell Directory Services, one of the principal Internet searching systems.

Network companies combine

Global TeleSystems, a telecommunications operator in eastern Europe, is to buy Espir Telecom, which has similar interests mainly in western Europe. Together, they could offer voice, data and Internet services to businesses across the continent. Global will pay \$456m for Espir. Neither is yet in profit, but they own a network of around 9,200km of high-capacity fibre cable.

Microsoft invests in Qwest

Microsoft, the personal computer software company, has invested \$200m in Qwest, a US broadband network developer. Qwest aims to become one of the leading carriers of Internet traffic. Microsoft has bought only 1.5 per cent of the shares, but intends to work closely with Qwest on developing systems for electronic commerce.

Siemens to operate UK savings

The UK's National Savings department is to be run by Siemens Business Services in a £1bn, 15-year deal with the Treasury. Around 3,800 civil servants will be transferred to Siemens. National Savings records will be fully computerised and its sales operations will be expanded.

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TRAINING by John Kavanagh

Internet will make an impact across the board

Although more companies are using a combination of computer-based and traditional classroom courses, the World Wide Web is unlikely to replace expert professional trainers

Compromise is replacing confrontation in IT training. Companies are taking the view that new and traditional methods both have a role - no longer to the exclusion of each other but, increasingly, in combination. The confrontation of the mid-1990s was perhaps inevitable as suppliers of computer-based training on CD-Roms attacked traditional classroom courses. The traditional training companies responded by becoming outlets for their new competitors. Now, the Internet is helping to bring the two together to meet training needs which neither can handle alone under all circumstances.

Formal classroom courses still dominate IT training in revenue terms, accounting for between 75 and 80 per cent, according to various studies.

Key Note, the specialist research company, lists the strengths as the immediate availability of an expert professional trainer, who can adjust the speed and emphasis to match the students; the higher status attached to such courses; the fact that staff regard being sent on one as recognition of their value to their employer; and the formal certificate that people often get at the end.

Weaknesses are that courses are usually paid for in advance, so unforeseen absence, for example through work pressures, means the fee is lost; people are absent from the workplace; competent students can become frustrated if the course is held back by less competent people; and every-



Justin McCarthy of Sybase: "There's no substitute for interacting with an instructor"

thing is covered in a single course on a single occasion, even though much of what is covered will probably not be used immediately. Indeed, Sybase, the US software company, says studies show that information retained in a student's mind 24 hours after a classroom course is no more than 25 per cent at best and normally around 15 per cent.

Self-study computer-based training scores against some of these weaknesses: people do not have to leave their workplace and can fit studying round their work; this method is seen as cheaper, especially if licences allow many people to use the same product and it can be dipped into at any time, for example to answer a query when a particular feature of a software product is needed.



Starting young: technology holds no fears for these children in Scotland who are interacting via video and telephone with pupils at other schools in their region

However, weaknesses in computer-based training in turn fall prey to the strengths of classroom training. In particular, there is no expert on hand and it is difficult to design products that handle all questions well. Key Note also says that learning through self-study is usually spread over a longer period.

Enter the Internet. At its simplest, training through the Internet means accessing computer-based courses at a supplier's web site. At the other extreme there are courses combining self-study and class discussion led by a teacher. These can be online through Internet chat facilities, using the keyboard, or indirectly through electronic bulletin boards.

"Corporate databases, documents, presentations and

computer conferences can now be woven together with Internet technologies and accessed through a web browser," says Richard Rimmer, who is a specialist consultant at PA Consulting Group.

Even so, the jury is still out on this latter approach. Some big suppliers have adjusted their targets in this area in the last 18 months and a further approach is now starting to emerge which brings all the others together.

Hewlett-Packard, Sybase, PA Consulting Group and others are moving to combinations of computer-based and classroom learning.

They are building pre-class and post-class computer-based sessions into their courses. "This approach allows students to assess

their level of knowledge by looking at materials and taking tests before they go to a class," says Sybase education manager Justin McCarthy.

"If necessary, they can get up to speed on certain parts of the course before going to the classroom."

The web cannot replace the classroom experience, he says. There's no substitute for interacting with an instructor whose experience can help people learn what they need to know. Indeed, if people come better prepared to the classroom, the instructor can become more of a coach, fitting the teaching more precisely to individuals' work needs.

"However, the classroom, with its isolated learning events, can't match the need for constant skills enhance-



Mission-critical IT systems: as the financial community invests more in information technology than any other sector of the business world, it also calls for continuous IT training. A trader in the New York Stock Exchange, above, watches a computer monitor as IT stocks rebound

ment and updating against change," he says. Sybase has found that keeping overall course length constant but cutting the number of days in the classroom by half - and mixing in online materials before and after - has increased retention rates.

In addition, it is finding that if people have the facilities to review the information after a week and then after seven weeks, retention rates exceed 80 per cent.

PA Consulting Group has also started using the combination approach where appropriate in management education programmes.

"One challenge facing a programme for a major client was how to continue the enthusiasm generated during the physical sessions when the participants dispersed to their different locations," Mr Rimmer says.

working papers. It is now being developed from its support role to a resource that managers will use to share actions, information and progress as they take the learning from the programme into implementation.

Different training methods suit different topics and different people. One view is that office products are broadly well-suited to brief introductions and then access to a CD-Rom or Web site for short bursts of training on particular facilities when they are needed; and that technical IT subjects are best taught through a combination of preparatory computer-based materials, including automated tests to highlight gaps in knowledge, then intensive classroom training.

The research firm, Key Note, forecasts good continued growth for all approaches - but perhaps inevitably sees the Internet gradually making an impact across the board.

COMPUTER GAMES by Michael Dempsey

Small screen players graduate to Hollywood

The world of big-time entertainment is taking a close interest in digital games as their appeal spreads across the age range and visual quality improves sharply

The computer games industry has matured into a global industry in the past 20 years. It emerged from popular home computers that now look puny and primitive beside today's desktop PCs. The mass appeal of games consoles like the Sony PlayStation helped propel computer games into the league of big business.

Sony has sold 43m PlayStation games, creating a huge market for games products and spawning impressive rival developments in the process. "The computer games companies have a consumer electronics heritage, and their first focus is on releases planned for the next 12 months. But the demographic profile of computer gamers is changing. The next century will see games written for and played by both the very young and the very old."

In Germany, Tivola Verlag is selling eight games titles aimed at children of three and above. Nursery schools are a fertile breeding ground for these games which it is

claimed will help the development of hand to eye co-ordination in young children. Lego, the Danish toys giant, has set up Lego Media, dedicated to producing computer games aimed at children of six and older. It expects sales to more than triple in 1999.

Mark Livingstone, Lego Media's worldwide managing director has his sights set firmly on the Internet. He believes that linking a recognised consumer brand to a secure and controlled method of accessing the Internet will bring huge dividends for a small number of players.

"Lego products will share in the real coming of age of the Internet through branded portals [access points] that parents know are safe for children to use," Sarah Radford, Tivola's UK managing director, believes that the advent of television quality images on PCs will bring games to a wider audience, and notes that the buying decision for games software is no longer made by

young adult males preoccupied with shooting aliens. "It's amazing how many sales we make to grandparents buying CD-Roms for their grandchildren to play with when they visit."

The world of the computer game is taking skills and tricks from the most advanced computer software used in business. SAS Institute, a privately-owned company, produces complex programs that hold and analyse vast amounts of corporate data.

In 1996, SAS spun off a team of software developers who operate in a wholly-owned but physically separate company, South Peak. The core of South Peak is an SAS technology called video reality, a technique of connecting video images to give the viewer 360-degree vision without any breaks or visible lines between the 90-degree segments of the view. Scenes from reality are captured on a video camera before being incorporated in South Peak products.

Doug Walker, the principal

games developer at South Peak's studios at Cary, North Carolina, used to work on development tools for the code behind the large industrial software from SAS. He is a complete contrast to the typical games developer, who usually becomes involved in the industry through personal enthusiasm.

But Mr Walker and South Peak illustrate how technology is crossing over from the mainstream of IT to produce new and lucrative games. "The development work for one of our best-selling games, Temjin, cost \$2m. But we can use the techniques employed in writing it elsewhere."

With the elimination of pixels and blocky images and the detail that comes from videoing the games environment, South Peak thinks it can win over gamers who are bored with the current standards of animation.

Pictures on video screens comprise triangular atomic shapes measured by polygons per second (PPS). Nvidia, a Californian company that makes graphics processors for personal computers and PC components, predicts that video quality will improve dramatically from a current rate of one million PPS to 25m PPS over the next decade.

While the visual quality of games will match the cinema, the film industry will merge with games developers. This process is already under way at Creative Edge, a games software house in Scotland.

David Wightman, the managing director, points out that small companies will no longer be able to produce an entire game. Expertise will be bought in and amalgamation will take place, mirroring the recent history of Hollywood.

"Photo-realism will come from high resolution chips and screen technologies. The characters in each game will have far more detail, so art directors will become



Gillian Anderson, an actress from the X-Files television series, smiles as she plays Fox Interactive's new X-Files video game at an Electronic Entertainment Expo in Atlanta, Georgia

involved and development will become more expensive. No one operation will build an entire game, so teams will come together with one group for character development, one for animation, one for background scenery and so on."

The economics of the industry will change, with far less left to chance as games development becomes as sophisticated as the production of Hollywood blockbusters. "More planning and investment will be needed to guarantee a return," says Mr Wightman.

This means that successful games will automatically generate sequels. The phenomenal success of Eidos, a UK games company, with the character of the curvaceous Lara Croft appearing in three successive Tomb Raider games selling 10m copies worldwide, paved the way for this trend. Eidos has already sold film rights for this brand to Paramount Studios.

Mr Wightman notes that ownership of brands will be critical in this commercial environment. "In 10 years time our company will be a media exploiter, licensing rights to games merchandisers."

Cable TV will become a prime delivery mechanism, with players subscribing to games services and channels. Creative Edge is already talking to MGM Studios in Los Angeles about collaboration between its graphics experts and the animation programmers for

future movies.

Companies like Sony and Nintendo also see themselves as competing in the entertainment sector, although their consoles employ top-end graphics technology from the IT industry.

In the first decade of the next century, this field of entertainment will see tens of thousands of players joining in multi-player games over the Internet while

domestic users of cable TV channels find themselves acting as characters in infinite variations of successful films that may have grown out of the script for games adventures.

The boundaries between the games industry and other entertainment sectors will become increasingly irrelevant. With entertainment giants ready to make massive investments, games are now a global business.

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The Financial Times Review of Information Technology is published 11 times a year: January - July and September to December, inclusive. Issues appear with copies of the Financial Times on the first Wednesday of each month. Postal subscriptions are delivered as soon as possible after this date.

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VIEWPOINT: JAMES MARTIN, IT guru

No Utopia in a world dominated by computers

As IT pervades business and society, the next century will belong to those who can master the complexity of life in a fast-changing digital environment, says James Martin, interviewed here by Michael Dempsey

James Martin is a spry 65-year-old who has helped define the shape of the software industry and has strong views on the impact of information technology on business and society.

Popularly known in the IT industry as "the father of computer-aided software engineering" (case), a disciplined approach to developing large programs, UK-born Mr Martin founded two successful software consultancies after 19 years with IBM.

But the decades of working, lecturing and writing 101 books relating to technology from the US, Ireland and Bermuda have not diminished his very British character. Mr Martin retains a dry humour and an admirable distance from some of the more enthusiastic advocates of advanced technology for its own sake. "The sugary euphoria that is almost a mandatory part of every company annual report is irrelevant."

He is working on his next book, forecasting technology developments over the first 10 years of the 21st Century. With the working title of "Chain Reaction", it is aimed at explaining future technology for the layman. But in common with most of Mr Martin's titles, it will have a strong business flavour.

One of his best-known books, *The Wired Society*, was published 20 years ago and predicted the rapid growth in data transmission over networks and the use of electronic funds transfer in the financial sector.

But he admits that his own predictions fall into two categories. Some developments can be tied to a mathematical measurement and be made with a high degree of certainty. Others remain extremely subjective. And the exponential growth of technology is undermining the number of predictions that can be measured.

"There are certain statements you could make in the past, such as assessing the growth in the capacity of computer chips, which were very likely to be correct. But now the explosion in telecoms technology is outstripping every assumption made over the last 30 years."

Some fibre-optic links deal with 100bn bytes of data a second and research laboratories are dealing with transmission in the order of a trillion bytes a second. Technology like this will mean trunk access to very remote computers at extremely high speeds.

Mr Martin foresees the digital television screen growing in size before yielding to wall screens embodying a very high quality of sound and picture. "Ultimately, the wallpaper itself could consist of computers. Homes will be full of addressable processors - you could have thousands of Internet addresses in one house."

He recognises that the all-pervading processor is not a recipe for Utopia. "As the Internet spreads, we will confront an absolute deluge of data. So the data warehouse will be very important. We will need new techniques to derive insights from all of this data."

Mr Martin believes that the crisis of data-overload will rejuvenate research into artificial intelligence, but that this will take an entirely different direction from past attempts to replicate human thought processes.

"Artificial intelligence has failed, failed totally. The human mind is incredibly subtle and complex - you simply could not design the human mind."

Just as the human mind finds IT difficult, Mr Martin thinks the real computer intelligence to exploit masses of data will need tough types of logic involving huge numbers of extremely powerful processors working in concert.

The latest impressive measure of computing capacity is the Teraflop, a trillion floating points per



Martin: "Twenty years from now, business in the Pacific Rim will recover and see another era of spectacular growth"

second. But Mr Martin is focussed on the Peta, a measure of 1,000 Teraflops.

The initial drive behind this technology will be nuclear weapons research, says Mr Martin, a former Pentagon adviser. His evident concern over the threat posed by the nuclear testing contest between India and Pakistan is balanced by the thought that massive data warehouses drilling information out of the avalanche of data will emerge from the machine that works in Peta.

Mr Martin takes the business of future-gazing seriously, an attitude that has brought him into conflict with Arthur C. Clarke, the British-born science fiction author. Mr Clarke is frequently credited with inventing concepts such as the communications satellite. But Mr Martin points to Mr Clarke's habit of churning out predictions, noting that many of his forgotten forecasts have come to nothing.

Annoyance with 'dangerous predictions by fiction writers'

Mention of Mr Clarke provokes a flash of emotion. "It is very dangerous to use fiction writers to predict the future," says Mr Martin. They are in the business of entertainment.

His anger with Mr Clarke is part of Mr Martin's wider annoyance with the lack of intellectual rigour in both IT projects and business ventures. "To understand the long term, you need a very broad vision."

Looking back at his past predictions, Mr Martin admits his own mistakes. "When I wrote *The Computerised Society*, I was wrong about the likely spread of computers. The PC has moved away from the corporate world and into the realm of the common man much faster than I expected. I had predicted the computer would remain the property of the technical boffins. I didn't spot the way the Internet would bring data to anyone who wants it."

This oversight fits in with a pattern Mr Martin has recognised in views of the future. "People underestimate the speed at which ordinary people get to grips with technology and learn to get more out of it."

The social impact of IT is a recurrent theme in Mr Martin's writing. He admits that he under-estimated the way an affluent society would opt for more

expensive consumer goods - with many people putting in longer working hours to pay for them - rather than demanding greater leisure time. But the price of having a highly productive computer literate workforce will continue to be high. "It has led to intense social competition. There is a very high level of stress in US society, witnessed by the number of people on Prozac."

Mr Martin thinks the next century will belong to a relatively narrow segment of society, comprising those who can cope with the complexity of working life in an IT-dominated world.

"Some people are masters of complexity. But only a very small proportion of society can learn how to deal with the kind of changes that are coming." This new ruling class can already be seen in the rise of incredibly wealthy individuals who are at home in a global trading environment. "George Soros earns more money than McDonald's - and McDonald's has 180,000 employees."

Despite the current slump in Asia, Mr Martin is convinced the region remains a strong long-term prospect. "Twenty years from now, the Pacific Rim will recover and see another era of spectacular growth."

"China will be run by very very rich people in Shanghai and Beijing who will be relying on much better communications and text transmission to pursue their businesses. You'll get clever people all communicating over vast distances and becoming part of a community of virtual clubs of the bright."

The mass of the population will still hook up with the Internet through a more capable device born out of the TV set. But Mr Martin is guarded when pressed on the fate of today's commercial giants in this game. "I don't think that mass access to electronic commerce can be made very easy if the Microsoft operating system is the backbone of the network."

He hints at the vulnerability of very large organisations. "The last act of a very powerful regime is to produce a 1,000-page standards manual. I'm not saying this is Microsoft yet, but..."

Companies that are wired into computer networks with massive bandwidth will have the capacity to exploit networked data and change shape quickly. Mr Martin thinks these operations will be the commercial stars of the next 20 years.



Computers everywhere: traders on the Boston Stock Exchange, just before the closing bell. The New York Stock Exchange has long been dominant among US exchanges, but in recent years regional stock exchanges in San Francisco, Boston, Chicago, Philadelphia and Los Angeles have been taking away some of the NYSE's business

'HAVES AND HAVE-NOTS' IN A NETWORKED WORLD by George Black

An expanding role for IT brings looming social risks

For millions of people excluded from the benefits of new technology and the Internet, the result could be increasing resentment and alienation

Information technology may be about to transform the world, but many professional futurologists - especially those advising governments - are worried that it will also sharpen the divisions in society.

They paint a very different picture of the world in the new millennium to that which is promoted by IT vendors and IT enthusiasts, seeing a growing split between "information haves" and "have-nots".

While the more affluent may have intelligent software agents working diligently for them, searching the Internet for luxury goods and services, the poor may become more and more alienated. They are likely to be as intimate with the Internet as they are with the Ritz hotel - namely, not at all.

The political jargon in industrial countries, a number of which are now ruled by centre-left governments, is "social exclusion".

Governments are in favour of more information technology but afraid of socially regressive consequences. Exclusion could take various forms. First, there is the impact on the job market. Some academics regard mass unemployment as the inevitable and permanent consequence of the IT revolution.

On the other hand, it is argued that IT, like other technological advances in the past, will ultimately create more jobs than it destroys and that these will typically be more desirable.

There is general agreement, however, that moving millions of people from outdated industrial skills to IT-based skills is a massive challenge. The size of the unemployable underclass may grow. Jobs will go to those who acquire IT literacy. But in most industrial countries, personal computer ownership extends to only around a quarter of the population and is skewed strongly towards the upper socio-economic groups. Some 6m homes in the European Union still do not even have a telephone.

Governments' response is

to stress the need for lifelong learning. In the UK, for example, the government is investing heavily in the concept of a National Grid For Learning to help reduce social divisions and spread education more evenly.

Another type of exclusion is exclusion from goods and services. Information technology could be harnessed to disenfranchise unfavourable classes of people.

It is a common fear that companies use computers to keep track of people's behaviour and increasingly there is a rational basis for that fear.

IT is now used to assess people's potential as consumers: if they deviate too far from the norm, they could be cut off. Banks will stop credit, retailers will withdraw offers or place their outlets in areas where there are "better" customers. Is it politically acceptable for shops to be out of reach of the poor and the old?

Digital television and the Internet could put more information services into the hands of those who can afford it - but exclude the rest

The way in which large corporations use personal information, therefore, looks likely to be controversial in the new millennium. As data protection laws become tighter, companies will be compelled to be more open about why they hold data. Using it to discriminate against certain categories of people could get a company a bad name.

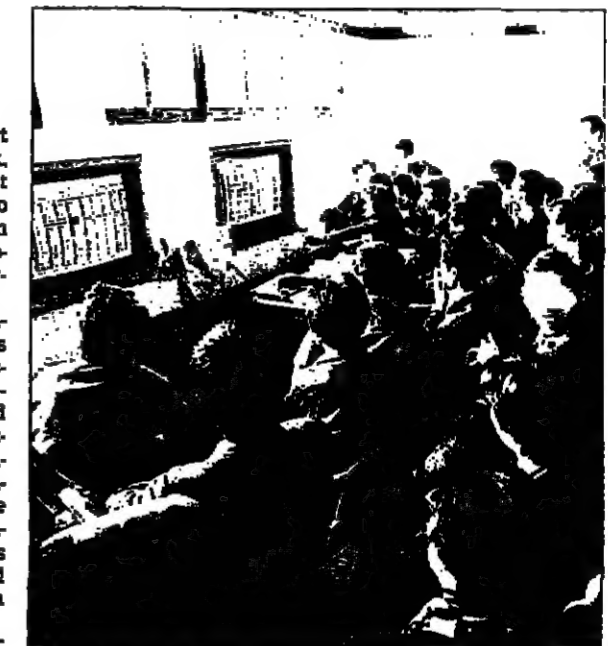
The poor and the old could be further excluded from many types of goods and services by being the only users of cash - and thus having to pay a premium - when more prosperous people have gone over to electronic money. The poor could be forced to live in a sort of "cash ghetto" of the economy.

At some point, governments may decide to switch off cash and make all money electronic. Perri 6, director

of policy and research at Demos, the UK think tank, raises the possibility that governments may have to impose a statutory duty on financial institutions to provide equal service to everyone.

The dangers of mass exclusion may shift governments gradually towards a less laissez-faire view of social policy. In a report called *Towards a Global Information Society*, the Organisation for Economic Co-operation and Development, the Paris-based economic think-tank, argued that policies must be designed to spread the benefits of information technology.

It emphasised the need for stimulating greater competition in IT markets and introducing measures to protect the vulnerable. Specifically, it called for breaking down the barriers between telecommunications, broadcasting and cable networks, creating broader access to



'High roller room': Chinese investors gather round computer monitors at the Shanghai Securities Exchange

still more of a noble aspiration than a working project, but it is probably further advanced than anything in Europe, where governments are still apparently weighing up their options.

Their hesitancy is partly due to concerns about intervening in the market to back a particular technology which could eventually turn out to be the wrong one.

Partly, they are constrained by the problem of having to require telecommunications operators both to compete more vigorously with lower prices and to offer what is, in effect, a charitable service.

Policy advisers are remarkably unanimous in their concerns. Governments, however, are slow to frame measures which could help to alleviate the dangers ahead.

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In India, a telephone engineer checks communication links in the crowded streets of Calcutta

YEAR 2000: FOCUS ON THE NUCLEAR INDUSTRY by Christopher Price

Planning for the worst, hoping for the best

Around the world, nuclear power experts have been striving to ensure that the millennium changeover is disaster-free. But checking all risks is a daunting task.

There is a dilemma at the heart of the debate over the millennium computer "bomb": the authorities wish to publicise the issue must be made at the risk of spreading undue concern.

Nowhere is this dilemma more obvious than in the nuclear industry. The potentially catastrophic consequences of a nuclear accident have led to some high-profile initiatives by western governments to tackle the year 2000 issue, or "Y2K" as it has become known in the computer industry.

However, it has also led to discussions over the state of other countries' nuclear industries being sometimes glossed over.

Last August, for example, confidential minutes emerged from a meeting of

the Group of Eight industrial nations and the European Commission expressing serious doubts over the ability of developing countries to tackle the year 2000 computer date problem in their nuclear industries.

The concerns were made after the meeting discussed a report on global readiness for 2000, when some computer systems and electronic products with embedded chips will be unable to recognise the change of date from December 31, 1999 to January 1, 2000.

The report expressed concerns over the lack of skilled labour available in many non-western countries to address the millennium computer "bomb" issue.

Eastern Europe was one of the areas highlighted as being of particular concern.

While much attention has been given to the nuclear defence sector of Russia and Ukraine, the preparations, or lack of them, by the former Soviet Union's large nuclear power industry has gone largely unreported.

With memories of the Chernobyl disaster still strong, confidence in Russia's ability to ensure the safety of their nuclear plants is not high among western experts.

In particular, doubts have been expressed over whether the country has enough engineers to tackle potential year 2000 problems among its 29 civilian nuclear reactors. There are a further 11 plants in the former Soviet bloc countries.

However, in a recent Financial Times interview, Vitaly Tolstougov, director

of the Chernobyl power station, said that a simulation of the millennium bomb had been performed recently on a reactor of similar manufacture to the one at Chernobyl in the Ukraine. The tests found the reactor to be safe.

"From our standpoint, the reactor is safe," he said.

Analysts also point out that the former Soviet Union's plants are older and use fewer computers and embedded chips than the more modern types used in western countries.

However, Serhiy Parashin, a former director of Chernobyl, is less optimistic. "The main danger is that we simply don't know what will happen," adding that the best hope for plants of the Chernobyl type is that if the primary system fails, the reserve diesel generator

The Millennium Bomb - 50 weeks away



should start. Should it not, everything would simply halt - in theory at least.

But as the Chernobyl disaster demonstrated in 1986, systems can fail and situations can get out of control.

One of the biggest challenges facing countries with a large number of plants, according to Steve Watkins, year 2000 programme manager for BNFL Magnox Generation, the UK nuclear generator, is attempting to quantify the scale of the problem.

"In an industry like ours, where safety is paramount, you have to assume the worst. Everything must be checked. We have to prove everything."

fixed by the various authorities in the UK which regulate the nuclear industry. For example, BNFL Magnox Generation's eight nuclear plants have run date change tests from 1998 to 1999, and from 1999 to 2000, which are checked by the Nuclear Installation Inspectorate. It then issues each plant with a Justification of Continued Operation certificate, without which the plant could not operate.

Mr Watkins says one of the key differences between the nuclear industry and many other industries is that its year 2000 problems are being solved as a matter of safety rather than for commercial reasons. "This has kept our focus on safety," he says.



Nuclear turbines: let's hope they keep working

Britain's millennium "bomb" programme for the nuclear industry began in earnest three years ago. It was among the first initiatives to investigate the problem, and its subsequent actions have formed the basis of the code of practice on embedded systems for both the Health and Safety Executive and the Institute of Electrical Engineers.

One of the most important checks to be made is with suppliers, particularly third party ones. "We have not relied on any of our third party suppliers telling us that they are Y2K compliant," says Mr Watkins.

BNFL Magnox Generation, which owns the oldest British nuclear stations after the modern ones were bought by

British Energy, has around 8,000 suppliers, 900 of which are important enough to warrant checks on their year 2000 compliance.

BNFL Magnox Generation's strategy for preparing for a difficult situation up to 2000 has involved whittling down its suppliers to an emergency figure of 30.

However, Mr Watkins is sure that the steps taken and in hand will be enough to combat the millennium challenge. "I'm confident that we will have mitigated the risks to the minimum."

Case studies on how various industries are approaching the Y2K issue will be featured in the FT-IT Review during the coming months.

LOOKING AHEAD

FT REVIEW OF INFORMATION TECHNOLOGY

FT-IT REVIEW THEMES

New IT strategies for digital business and finance in 1999

The Internet and e-commerce will be prominent among the themes featured in the FT Review of Information Technology this year as companies and their customers move increasingly online

Changes in the IT industry itself will be the main focus of the next issue of the FT-IT review on March 3, 1999. This issue will also examine the impact of IT on the media world and look at the IT systems used by the new European Central Bank. From this month onwards, the review will carry regular features on:

- IT in finance, with a special focus each month.
- Electronic business.
- The millennium date issue.
- IT news update.

Each issue will include a main theme, with a cover story on a topic of key importance to IT users, together with views from leading suppliers in the IT industry, plus our regular IT News Update.

Business Solutions Series

During the year, there will also be a series of special issues on Business Solutions in the areas of knowledge management, enterprise resource planning, plus managed services and outsourcing; plus a special issue on e-business, (see details below, in next column).

March

- Main theme: This month, the world's largest IT show takes place in Hannover, Germany, and our main theme will be: The IT industry in transition.
- Second theme: IT and new media.
- Plus regular features, including: IT in finance - focus on the European Central Bank.
- Electronic business.
- Update on the millennium date issue: how various sectors are tackling the problem.

April

- Main theme: Internet issues.
- Second theme: Java update.
- Plus regular features, including: IT in finance - focus on insurance.
- Electronic business.
- Update on the millennium date issue.

May

- Main theme: Mid-sized enterprises - selecting IT strategies.
- Second theme: Telecommunications - increasing convergence in information and communication technologies.
- Plus regular features, including: IT in finance - focus on venture capital.
- Electronic business.
- Year 2000 update.

June

- Main theme: Windows - what's at stake?
- Second theme: IT in manufacturing: focus on the cad/cam sector.
- Plus regular features, including: IT in finance - this month's emphasis is on

- personal finance.
- Electronic business.
- Year 2000 update.

July

- Main theme: Electronic commerce and the wired business.
- Second theme: IT and the law in the run-up to the year 2000.
- Regular features, including: IT in finance - focus on retail banking.
- Electronic business.
- Update on the millennium date issue.

There will be no issue of the review in August.

September

- Main theme: IT in retailing.
- Second theme: Supply chain management.
- Plus regular features, including: IT in finance - focus on risk management.
- Electronic business.
- Year 2000 update.

October

- Main theme: Continuity planning ahead of the millennium "bomb".
- Second theme: IT in education.
- Plus regular features, including: IT in finance - focus on investment banking.
- Electronic business.

November

- Main theme: Continuity planning for the year 2000 (II).
- Second theme: IT in travel and leisure.
- Plus regular features, including: IT in finance - focus on fund management.
- Electronic business.

December

- Main theme: The Cyber Millennium.
- Second theme: IT in the search for the stars.
- Plus regular features, including: IT in finance - focus on securities markets.
- Electronic business.
- Focus on the imminent year 2000 date issue.

Special mid-month issues on e-business and business solutions

During the year, we will also include a series of extra reviews on key business issues:

- E-Business.
- Knowledge Management.
- Enterprise Resource Planning.
- Managed Services and Outsourcing.

For more information

Editorial synopsis: For more details of the next two issues of the FT-IT Review, please use the special fax-to-back service on: 0900 208 903. (Callers outside the UK dial exit code: +44 900 208 903). In the event of problems, send a fax request to Rowena Carr-Allinson, FT-IT Review on 0171 673 3197, or e-mail: Rowena.Carr-Allinson@FT.com

Advertising: full details plus e-mail addresses relating to the FT-IT Review and the Business Solutions series can be found in the information panel on page three of this current issue, or write to the Financial Times, Number One, Southwark Bridge, London, SE1 9HL.

TRANSPORT SOLUTIONS by Geoffrey Nairn

How IT will help to ease travellers' frustrations

Experts want to make life easier for users of road, rail and air transport through the systematic application of IT, but they are mostly against cars being favoured over public transport

Utopia is the name of a computer system that attempts to control traffic in the crowded Italian city of Turin. The name is well chosen, for the history of transport planning has often been one of impossible dreams.

Today, however, there is a new urgency to find solutions to chronic traffic problems and transport telematics - the application of IT to transport - has emerged as a key technology to help realise the vision of modern transport networks that successfully balance conflicting needs.

"We are at a turning point as far as transport telematics is concerned," says Petra Mollet, executive director of Polis, an organisation of over 50 European cities investigating telematics projects to improve mobility and the environment. After a decade of research and development, analysts say transport telematics is poised to enter the commercial mainstream.

SRI Consulting, a US consultancy, estimates that the market in North America, Europe and Japan could generate cumulative sales of \$200bn by 2011. Some of the most promising uses identified by SRI are technologies to manage commercial vehicle fleets, advanced traffic management systems, electronic toll collection and public transport management.

The IT industry has woken up to transport telematics. In 1998, Intel and Microsoft unveiled PC technologies designed to run telematics applications in cars. Nokia, the Finnish telecoms equipment supplier, is also keen to enter this market with

products that incorporate technologies such as the Internet, GSM wireless networks and Global Positioning System satellite-based vehicle tracking.

Analysts say more than 8m cars in western Europe and 2.7m in the US will have mobile location devices by 2005, creating a mass market for onboard navigation systems, emergency locator services and other applications. "Transport telematics opens a new world of applications that we probably cannot imagine today," says Razvan Olaru, Nokia sales manager for smart traffic products.

Several carmakers plan to install Nokia telematics products in their vehicles during 1999, the company says. But transport telematics is not just for the benefit of car drivers, though inevitably this attracts most commercial interest. Airports, ports and railways can all gain from technologies to reduce congestion and improve safety.

Polis sees one of the most rewarding areas for telematics in creating multi-modal transport systems, which allow goods and people to undertake "seamless" journeys across different transport networks and national borders. This idea is highly relevant to Europe as the free movement of people and goods spurred the creation of a united Europe - and the euro.

Today, however, the demand for greater mobility is constrained by the limited capacity of transport networks; the consequences are readily visible in any congested European city or airport. One of the key aims of

transport telematics is to address traffic problems in an integrated fashion and so avoid the piecemeal and partisan planning that has plagued transport policy in the past.

"Integrated transport systems is the big issue," says Ms Mollet. "No single telematics application is going to be the panacea so we have to integrate applications into transport policy as a whole and get co-operation between different actors."

Example

Turin, like many European cities, has a growing traffic problem exacerbated by the inexorable rise in car ownership and the decline in public transport usage. As the home town of Fiat, Italy's largest carmaker, Turin is understandably reluctant to adopt punitive anti-car measures.

The city has instead turned to telematics solutions and, in particular, integrated transport management with a scheme called Telematic Technology for Transport and Traffic in Turin (TTT), funded by a consortium of seven companies from the public and private sectors.

The TTT initiative involves 10 telematics applications, including: variable message signs to warn motorists of congestion or show the nearest available parking space; systems to give public transport priority at traffic lights; and bus stops that provide real-time information on when the next bus is due.

The technologies by themselves are not revolutionary and are widely used elsewhere. Turin has, however,



Crowds through London's Ears Court Station; transport telematics could reduce the problems

Tony Andrews

gone further than most in co-ordinating the different systems to build what experts call an Integrated Road Traffic Environment.

Travellers can access real-time multi-modal information - over the Internet, for example - before setting off and during their trip. Moreover, the whole traffic network is managed according to actual demand and strategies designed to favour public transport.

Field trials conducted in 1997 demonstrated that the TTT initiative cut journey times by up to 15 per cent for public transport and 22 per cent for private traffic. The scheme is limited to a handful of major roads, but if it were extended to the whole of Turin, the city estimates it would reduce average journey times by 25 per cent, cut pollution by 18 per cent and yield energy savings of 18 per cent.

Yet despite the promise shown by this and similar projects, proponents of transport telematics complain of the lack of political consensus - and funds - needed to implement schemes on a wider scale. "A lot of transport telematics is

very politically sensitive," says Ms Mollet.

She worries that developing nations may overlook transport telematics in their rush to embrace private car ownership and emulate richer nations. Polis recently conducted a survey of cities in eastern European countries, some of which are candidates to join the European Union. The findings were a disappointment to Polis as they revealed that policymakers gave highest priority to building new roads and parking spaces.

Schemes to encourage inter-modal transport and improve the reliability of public transport came bottom of the list. "Eastern Europe may make the same mistakes as their neighbours in the west in scrapping public transport," says Ms Mollet, who is also dismayed at China's recent decision to promote the car over the bicycle.

One of Polis' new priorities is thus to develop low-cost telematics applications designed to appeal to the limited budgets of developing nations. But persuading them to keep the car at bay will be no easy task.

VIEWPOINT: RAY HAMMOND, IT guru on attitudes towards the online world

Intriguing possibilities

The US and Europe have different cultural attitudes to information technology, says Ray Hammond, interviewed here by Mark Vernon

"The UK lags behind the US by 21 months and five days in terms of its online development."

□ "Ninety-five per cent of businesses in Europe have not yet begun to think about becoming virtual."

□ "The bandwidth problem will be solved by 2002."

□ "In 1999, Europe will realise that the apparent over-evaluations of Internet brands are actually worth every penny."

Predictions are the stock in trade of the IT futurist. This clutch falls from the mouth of Ray Hammond within a few short minutes of meeting him. It suggests showers of commercial opportunities for online business over the next few years.

But it is the precision of Mr Hammond's oracles that is particularly notable and which makes his audience sit up and listen. For although it is impossible to under-estimate the impact computers will have on the world, correctly anticipating the

leg, but it is a good indicator," Mr Hammond explains. The immediate reason for the differential is obvious. American citizens, whether at work or play, are far happier communicating electronically than Europeans, whether by e-mail or video conferencing.

But there are deeper cultural issues at work here, too. American culture looks to the future because it talk is the US, the response is in the affirmative, a "yes". But when I am finished on the stage, say in Scotland, the response is a mumble of "I don't know" and "It wouldn't happen here". America has the advantage of a cultural readiness to embrace the new world.

On a more abstract level, the lag results from a confusion of what is intangible with what is real. "Business managers think that paper is real because it is physical, whereas the screen is unreal because it is virtual," Mr Hammond says. "But we are by nature virtual ani-

mals, ever since we painted pictures on cave walls."

And on a rather less romantic note, it is the "unnatural" resistance to virtuality today that is preventing European commerce from relieving the pressure of physical transactions in business processes and reaping stupendous savings as a result.

"Consider the case of a 35-year-old woman in a large company with a good career," Mr Hammond says. "She finds out she is pregnant. Not wanting people to know, she asks



Hammond says 'Europe still has big hurdles to overcome'

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ACADEMIC VIEWPOINT: HARVARD PROFESSOR JAN HAWKINS

The challenge is to match educational needs with computer power

Intelligent use of information technology can help the learning process, but traditional teaching methods will continue to play a vital role in and outside the classroom, says Jan Hawkins, interviewed here by Victoria Griffith

US schools spend hundreds of millions of dollars each year on technology. Hooking every American classroom up to the Internet has been a priority of the Clinton administration. In a recent US Education Department survey, parents placed technological skills just below reading and writing as the areas their children most needed to master to ensure a successful future.

Yet the case for improving education through technology is still weak. Two months ago, a *Boston Magazine* survey showed that in the New England area, state schools spent much more than preparatory schools on technology; their scores on standardised tests, however, were far lower.

So is technology a waste of money or the panacea for a troubled school system? Neither, according to Jan Hawkins, a guru of technology's impact on learning and a professor at Harvard's School of Education. "Technologies themselves won't bring revolution," says Ms Hawkins. "Scores won't magically rise when you put computers in the classroom. But computers can help people to learn."

In fact, they are doing so in some unexpected ways. Many people, when they envision technology in the classroom, think of the computer itself as a teacher. A child may be seated in front of a sophisticated maths software program, for instance, to gain supplemental

instruction. "While some educational software is good," says Ms Hawkins, "such programmes are a poor use of expensive technology. Using technology in that way does not boost examination scores."

Some of the best uses of technology, in fact, do not involve the child at all. Ms Hawkins points out. At US schools, for example, teachers and administrators have used the technology to good effect by reducing paper work, thus freeing up time to spend on instruction.

Universities are relying on technology to cut through red tape as well. At the Wharton School of Business at the University of Pennsylvania, students use an intranet to register for courses,

download course assignments and deliver homework.

Improved communication, through the Internet, has also proved a powerful tool for better learning. Ms Hawkins points to the experience of the Union City school district in New Jersey. In the early 1990s, Union City's school district was distressed. Test results were so bad that the state had threatened to take over its administration. Officials knew major changes were needed in curriculum, scheduling and teaching methods.

At the same time, Bell Atlantic, the US telephone company, was looking for a school to use as a test case for new technology like the Internet. The school was wired, and computers were installed in every classroom. Test scores improved dramatically.

Union City has become



A child shall lead them: Anna Walter, aged nine, a third-grader at L'Ouverture Computer Technology School, teaches a group of adults about the use of the Internet. The school in Wichita, Kansas, is nationally recognised in the US for its technology and computer programmes

such a success story, in fact, that it has become a model for the use of technology in the classroom. But perhaps the biggest surprise in the experiment is that much of the added learning did not take place in the classroom at all.

"One of the most impor-

tant things that happened in Union City was that Bell Atlantic connected the parents to the system as well," says Ms Hawkins. "Every seventh grader was given a computer to use at home, and the parents, as well as the kids, were trained in how to use it."

As a result, parents became far more involved in their children's education. They used the Internet to find out if their children had homework, then made sure assignments were complete. Through e-mail, they were constantly apprised of their children's performance, and so were able to respond much more quickly when problems arose.

The Internet also improved student-to-student, and teacher-to-teacher communication at the Union City School. Through e-mail, teachers were able to collaborate far more easily on interdisciplinary projects. Students began to send each other e-mails as well, sometimes just to gossip.

"One of the big surprises was the impact the technology had on writing skills," says Ms Hawkins. "The kids suddenly had an incentive to actually put their thoughts into words. Having an audience made a big difference." In fact, Union City school children now outperform other students in the area in writing skills on standardised tests.

The stakes of technology in education are rising. The cost, once Internet connections and multimedia equipment are taken into account, is far higher than it was when computers were simply used as word processors. Expectations of what technology can do for learning have also been elevated by the advent of the world wide web, video-conferencing, and other tools.

Success stories abound, says Ms Hawkins. Business schools and medical schools



Jan Hawkins says 'the stakes of technology in education are rising'

are among the best users of technology. "Medical schools, in particular, have made great use of simulations to help students learn," says Ms Hawkins.

"Computers can help you see how all the parts of a system impact each other at once. That's very difficult to do in lecture or textbook form."

Yet teachers and administrators have also made many mistakes. "I've seen computers just sit in boxes because teachers couldn't figure out what to do with them," says the Harvard professor. "The situation is improving, however. Most schools, for instance, have learned that training - of the teach-



Themes for 1999

Details of forthcoming issues of the FT's monthly Review of Information Technology appear on page 14 of this issue.

ers, administrators, even parents - is necessary in order to take full advantage of the technology. Yet Ms Hawkins says she still sees a lot of waste: technology and computer programmes that are not integrated with the rest of the curriculum, systems that are used heavily by a few teachers and all but ignored by others.

"I see the most serious mistakes happening less," says Ms Hawkins. "But we still haven't come completely to terms with how best to use technology in the classroom. Computers can be oversold as a magical device. In reality, they can be an enhancement, but not a replacement, for non-technology-based learning."

RAY HAMMOND: IT guru

Europe 'could steal a march on the US'

From page 14:

her best friend to call the HR (human resources) office and find out about maternity benefits. The HR person takes the call, goes to the file and puts a leaflet in the post. The whole process takes about 45 minutes and involves three people. Set that against a click on an HR web site which one person can do in a few seconds, all on her own.

The point is that enterprises today are filled with this kind of time-sapping routine, accepted as necessary but actually relentlessly dulling the efficiency and creativity of processes that should enhance the business. If the IT industry is to be characterised by anything over the next five years, it will be in the wholesale automation of these ungainly but critical transactions.

But let it not be said that the IT business is unexciting or that Europe's second place is set in stone. It is possible that in the next three years Europe could steal a march on the US and overtake it. The reason follows from contemplating what the next "killer application" could be.

"It will be a hand-held 'something' - no-one can know the language of the future," says Mr Hammond. The "something" will be the device that best exploits the convergence of wireless telephony with the Internet and the perpetual power of technology to miniaturise, especially through processors capable of voice recognition. "Anything without a keyboard stands a great chance."

One of the most intriguing things about this device is that it will require a new operating system and set of

standards. The standards could be Europe's next generation GSM (global system for mobile communications) due out in 18 months' time and Mr Hammond believes these could win out over the US equivalents.

GSM has performed well in the massive markets of Asia, potentially turning the technology into the platform of choice for billions of people.

In the battle over operating systems, Pison of the UK and its fellow members of the Symbian consortium - Nokia and Ericsson in Europe and Motorola of the US - could pull the rug from underneath Microsoft's feet in this arena.

"I am not saying that Windows is going away. But Gates is increasingly unable to contain the IT container. There could be a shift in the balance in favour of Europe."

Mr Hammond could hardly be more approving of the favourable position that Britain is creating for itself. He thinks Peter Mandelson, who resigned just before Christmas as UK trade and industry secretary over his personal financial affairs, was "spot on" with his approach.

"I watched the Queen's Speech [at the opening of parliament] and the electronic commerce bill was the first item of business. That is very significant." There are still substantial hurdles for Europe to overcome: notably the thorny issue of indirect taxation.

But, at least according to this IT futurist, the signs are that Britain's New Labour government has fully understood the potential for the UK economy if it can become the digital leader in Europe. The impetus now needs to be maintained.

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